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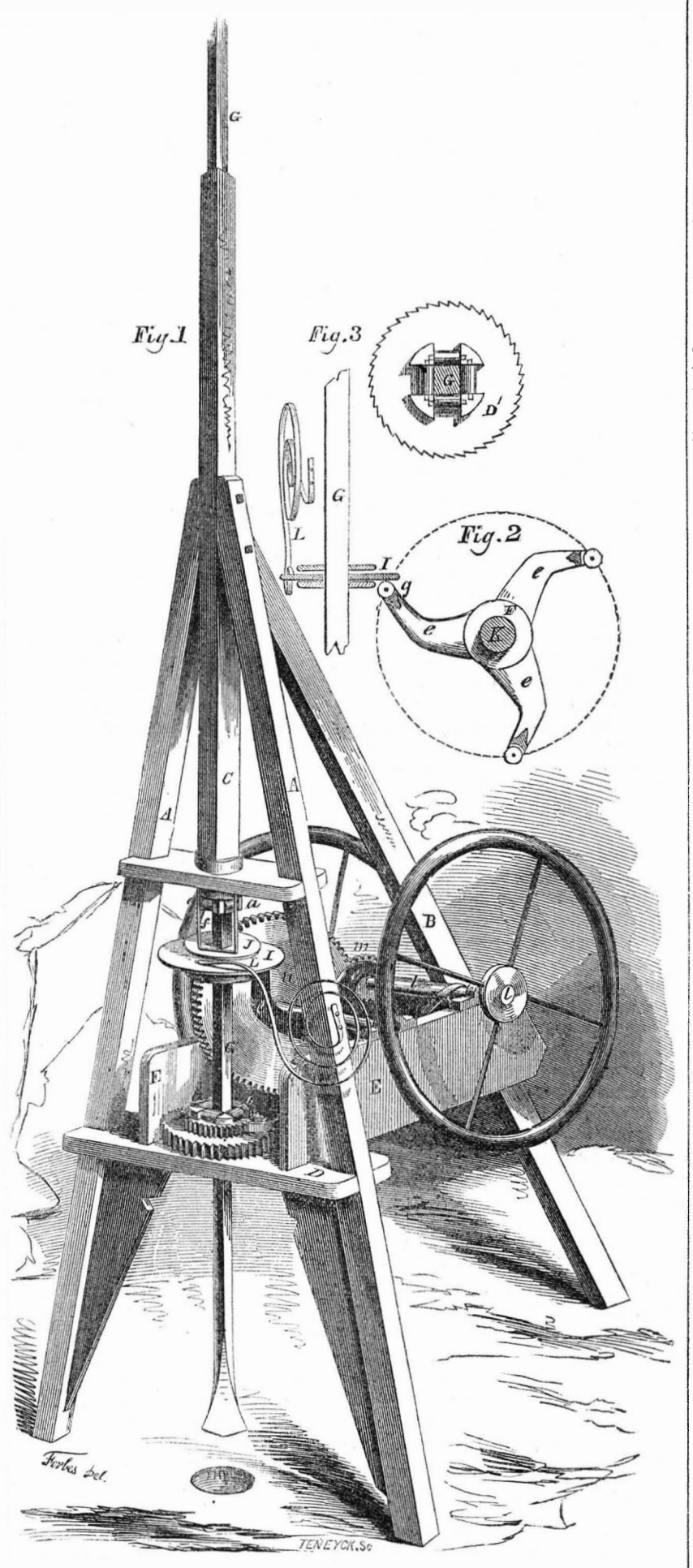
DUNHAM'S IMPROVED ROCK DRILL.



Improved Rock Drill.

The accompanying engravings represent an improvement in rock drills, for which a patent was granted to Edward G. Dunham, of Portland, Conn., on the 10th of last October.

Figure 1 is a perspective view ; figure 2 is an elevated section of the lifting arms, the drill bar, and spring, and figure 3 is a top view of the ratchet wheel for turning round the drill bar, G, and it also shows the roller collar box of the drill bar. Similar letters refer to like parts.

A is the frame, with an inclined back post, B, and side bearers, E E ; C is the drill box through which the drill bar, G, moves ; D is a lower girt of the frame, the upper one sustains the drill box : *l* is the driving shaft with a fly wheel and crank on each end, for one man on each end to operate the machine ; *m* is a cog pinion on the main shaft, *l*, gearing into the cog wheel, *n*, on the shaft, K, (figure 2) inside of the frame, on which shaft are the lifter arms, *e e e*, which are cast on a hub, F, secured on said shaft ; *g* is a friction roller on the end of each lifter arm. Two long spring ratchets take into the teeth of the ratchet wheels surrounding the drill bar, G, and resting on the lower girt, D. The end of one of these ratchets is shown taking into the teeth of one wheel in figure 1, but nearly all the rest of it is hid. They are ecured around the main shaft, and at every revolution take into a new tooth, and thus make the drill strike into a new place every stroke, and gradually revolve it. L is a stout steel spring with one end secured to the frame, and the other resting upon the lifter plate, I, on the drill stock. The recoil of this spring, when the drill falls, imparts additional force, and gives a greater blow than that acquired from the weight of the drill alone ; D′, in figure 3, is one of the ratchet wheels for moving the drill stock round ; *a a* and *b b* are collar boxes with friction rollers in them to allow the drill stock to play smoothly through them ; figure 3 shows one of these collars ; I is the first friction plate placed loosely on the drill stock, with its central opening a little larger in the diameter than the drill bar. It is held in place by the spring, L, but is also allowed to incline itself, when lifted by the arms, *e*, of the lifter and bite on the drill, and descend with it ; J is a small friction plate for catching and holding the bar when not in use, by being inclined and held by a stirrup catch, *f*, figure 1. When not in use for holding the bar, G, this small plate moves up and down loosely with the lifter plate, I. The lifter having three arms, the drill is raised and strikes three times during one revolution of the shaft, K. A worm wheel can be employed to turn the drill, in place of the pallet and ratchet wheels. The drill box, C, may be made to open at one side, so as to take out the drill bar more easily, when required. As the lifter revolves, the arms, *e e e* alternately come under and raise the plate, I, figure 1, and thereby raise the drill, and then when each has attained to the highest point of its revolution, it slips out, and the drill falls. When it is desired to lift out the drill, the top of the spring, L, is released from the top of the lifter plate, I. There is a soft buffer of leather, or other such substance placed under the lifting plate, I, so as to make it strike softly upon the collar box, *b b*, when the drill falls.

The claims of this patent are in substance as follows :—1st. Arranging a horizontal plate on the drill rod, and by bringing the lifter in contact with it in the manner described, it will be caused to incline slightly during the raising of the drill bar, and consequently will bite upon said bar, and hold it firmly until it is raised to the position desired, and as the lifter escapes, again assumes nearly a horizontal position, then quits its hold and falls withthe drill. 2nd. Rendering the lifter plate, I, for raising and dropping the drill bar adaptable for removing the said bar entirely out of holes when drilled, by employing the small friction plate, J, on its top, which can be set inclined to hold the drill bar, as it is gradually raised. 3rd. The small plate, J, is claimed, whether used in connection with the plate, I, or not, when it is sufficiently inclined to hold the drill bar by the catch, *f*, by any means employed for so doing this, to retain the bar while the machine is being lifted. 4th. Accelerating the descent of the drill bar, and increasing the force of the blow, and increasing the friction on plate, I, upon the drill bar by the spring, L.

Mr. Dunham informs us that two men with this machine, can do the work of eight. It can drill a perfect round hole from two to ten inches in diameter, and twelve feet deep, without any connecting rod. By means of a tin cannister employed to contain the charge in these holes, the rock can be split in any direction required. The engravings are made from a model of the machine, and are a little different in some points from the drawings of the letters patent, but not in any of the features claimed.

More information may be obtained by letter addressed to the patentee, at Portland, Conn.

Medical Styptic Balsam.

Dr. James Warren gives the following formula for this preparation :—Sulphuric acid, (by weight,) five drachms ; oil of turpentine and alcohol, each, two fluid ounces. Place the acid in a mortar, and add the turpentine slowly, stirring constantly with the pestle ; then add the alcohol in the same manner, and continue stirring until no more fumes arise, when it must be bottled and stoppered with a ground stopper. The dose is forty drops, to be first incorporated with sugar, and then dissolved in a tea-cup full of water. It may be repeated every hour until three or four doses are taken.

Said to be very efficacious in hæmoptysis, epistaxis, and menhorrhagia.—[Medical Recorder, Memphis.

Lethean Liniment—This name is given, by Dr. Tilman Douglass, to a liniment made in the following manner :—Digest a bar of fresh turpentine soap and four ounces of gum camphor in a gallon of alcohol, for two weeks, in the heat of the sun. It is then bottled up while hot, and one drachm of chloroform added to every four ounces, set in a cool place and shaken occasionally while coagulating. The mode of applying it is, to coat the part well, and cover it immediately with paper, which will adhere firmly, and produce a gentle burning, tingling, sensation, which in neuralgia, rheumatism, irritability of the stomach, cramps, colic, &c,, is perfectly delightful.—[Memphis Medical Recorder.

Statue to Franklin.

A statue of Benj. Franklin is to be erected in Boston, costing $10,000. Greenough, the sculptor, is at the work, and it is expected that he will have it completed by 1856. It is to be of bronze and eight feet in hight. The casting is from the manufactory of Mr. Ames. It represents Franklin in citizen's dress, with a cane in his right hand, and his cocked hat under his left arm. The entire cost of the statue and bas reliefs will be $18,000.

Extension of Patents by Congress.

A great number or petitions have been sent in to Congress against extending the three patents for reaping machines, viz : Hussey's, McCormick's, and Moore and Hascall's.

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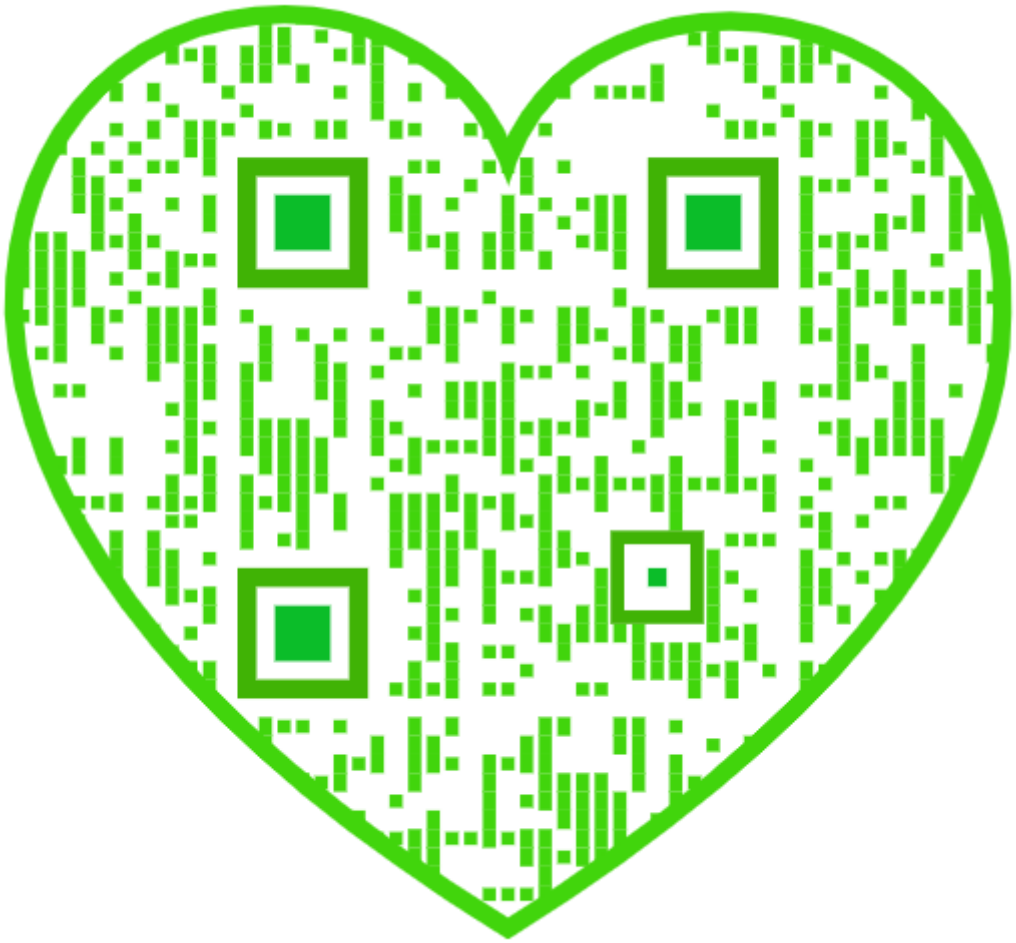


The Art of Dyeing—No. 6.

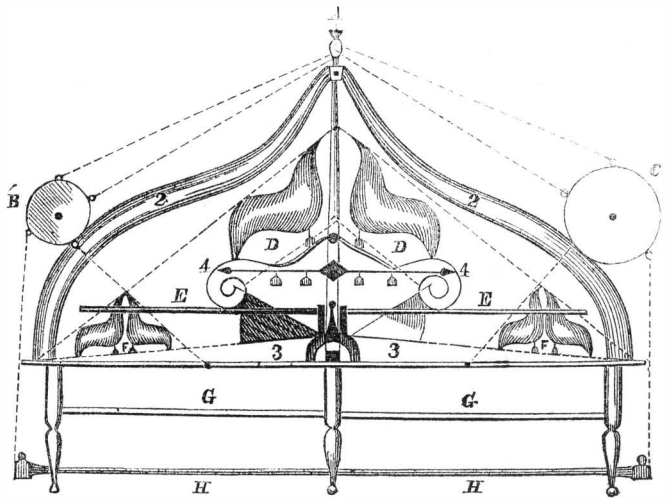
BLUE ON COTTON—INDIGO—The oldest method of dyeing blue on cotton is with indigo. It is believed that the Greeks and Romans were unacquainted with the use of indigo, but it has been used from time immemorial in the East. The first indigo employed for dyeing in Europe, was brought by the Dutch from the East Indies. It was also used by the Mexicans upon the arrival of the Spaniards, as mentioned by Clavigero. The best indigo is now raised in Bengal, but as good can be cultivated in the United States. It makes the richest blue color on cotton, but is expensive. The coloring of indigo-blue is a branch of dyeing peculiar in itself, and requires much experience. There is so much dependent on the skill of the eye, that no amount of word instruction can enable a person to conduct the business, still the way to dye the color can be taught, and a number of useful hints given to all. A work recently published in London by David Smith, named the Dyer's Instructor, is worse than useless to any person who desires information on indigo dyeing, more especially on the blue vat.

The bath for dyeing indigo blue on cotton is called "the blue vat." The most common vessels used are large wine casks, five of which are called a set, each capable of handling ten pounds, that is for yarn. Many vats are made of cast iron, well bolted, and rendered water tight at the seams. These are made of a rectangular form, and capable of handling about from twenty to twenty-five pounds of yarn at once. They are made very deep, so as to allow the sediment to lie undisturbed on the bottom, when the yarn is being handled. Pieces are dyed in these cast iron vats by using a frame with rollers, and making the pieces, which are sewed with their ends together, dip down and turn over a roller sunk in the vat to a certain depth. It is also a common thing to suspend a screen down in the vat, to prevent the disturbance of the sediment.

A blue vat may be set with more or less indigo, so as to make it strong or weak. The best proportions are for ten pounds of indigo good quality—ground in a mill, until no grit is felt when rubbed between the finger and thumb—sixteen pounds of powdered quicklime, and fourteen pounds of the sulphate of iron (copperas,) that is for a ten pound vat. These are stirred up occasionally for two days, in the water in the vat—which is filled to within four inches of the top—with an iron rake, which is a disk of thin plate steel set on the lower end of a long shank, to reach the bottom. Care must be taken to rake well from the bottom, until no hard lump is felt sticking to it. When the liquor assumes a deep rich green color, with a violet froth floating on the top, it is a sign that the coloring matter of the indigo has been given out to the water, and the vat ready for working, after it has completely settled. A thin crust of the carbonate of lime gathers on the surface of a blue vat, and this prevents the admission of air. When this is broken, by handling the goods in dyeing, the vat has always to be raked up, and allowed to settle before it can be worked again. This takes about ten hours. Only part of the indigo is given out to the liquor, at first, and as the vat is worked, it has to be mended with lime and copperas, from time to time. The wants of the vat are known only by its appearance. As the indigo is worked out, the color of the vat becomes a lighter green. It takes five ten-pound vats to work out the indigo economically, each for ten pounds. They are worked out and made up in rotation, which takes about four weeks, working every day. The yarn, to attain the deepest shade, gets five dips, commencing with the weakest vat and finishing with the strongest, wringing and scutching the yarn after every dip. The cotton comes out of the strong vat a deep green color, and becomes blue as it is exposed to the air by absorbing oxygen. The business of indigo blue dyeing is on this account very unhealthy. A little pearl ash added to the vat makes it produce a clearer color.—When fifty pounds of yarn are dyed at a batch regularly, it requires twenty-five ten-pound vats to work the indigo economically. It is scarcely possible to maintain all the vats at one particular strength; there is generally a difference of two or three shades in five ten pound bundles. These are examined and compared with one another before the last dip, and are handled in the vat such a length of time as will bring all to the same shade when finished. After being dyed the goods are run through a tub of diluted sulphuric acid, then washed, wrung, and are ready to be dried. The sulphuric acid *blooms* the *color*, makes it look richer, and the goods cleaner. In emptying indigo vats, when they are worn out, to be set again, the sediment only is thrown out, and the clean liquor retained, to be used in place of water Large vats cannot be so economically worked as small ones.—The blue vats in calico print-works are thrown out long before the indigo is so completely worked up, as in the establishments for dyeing yarn in New York and Philadelphia.

Great care must be exercised in the selection of good copperas. The best has a dirty green appearance, not a red rusty look, which some mistake for the genuine. If bad copperas is used, the blue vat, as it gets old, will float—that is, the sediment or sludge will not sink—and in that state a vat is unfit for use.

SPIRITUAL MACHINE.



This figure represents a machine for spiritual manifestations, which appeared in the *Spiritual Universe*, published in Cleveland, Ohio, and sent to us by one of our subscribers, marked as follows: "New Machinery. What do you think of it? The persons describing it are well known, and as truthful as any citizens of Cleveland." The following is a description of this machine, taken from the *Universe*:

"Strange and interesting accounts having been given us of the Spiritual Manifestations made at the Spirit rooms of Jonathan Koons and John Tippie, in Millfield Township, Athens County, State of Ohio, we recently devoted a few days to visiting the rooms and witnessing for ourselves the wonderful manifestations there made.

From Cleveland we went to Columbus by railroad, thence to Millfield, a distance of seventy miles, by private conveyance, over roads quite rough and hilly. On the third day from Columbus we reached Millfield. Here we found two log houses fitted up as Spirit rooms. These houses are about three miles apart, and are each composed of a single room about twelve by fifteen feet in size. One house is on the farm of Mr. Koons, the other on the farm of Mr. Tippie, and both were built under directions of Spirits, and are used only for Spiritual demonstrations. We staid two days and nights at Mr. Koons', and two days and nights at Mr. Tippie's, and carefully examined each of the rooms and their contents, to prevent any collusion or deception. In each of the Spirit rooms stands a table, on which is placed what is called "Spirit Machines," of which the above cut is a very fair representation. The table is about six feet long by two and a half feet high. The table and the wood portion of the machinery is cherry, which is stained and varnished. A is a glass knob; B a small drum; C a large drum; D D double plates, fastened together, one plate of copper the other of tin; E E a steel bar about half an inch square; G G drawers to the table; H H an eight-sided wooden bar suspended under the table by copper wires, with a number of wires running the whole length of the bar; 2 2 a wood frame resting on each end of the table; 3 3 double plates of tin and copper; 4 4 a bar of wood with three glass knobs attached wound with wire and ending with a scroll resting on the steel bar, E E; F F double plates of copper and tin attached to the wires. The drums are firmly secured to the machinery and to the table by wires. This machinery was constructed under direction of Spirits, and is used by them for collecting and retaining electricity, and is charged at every circle before any demonstrations are given. On the table, and by the side of the machinery, lies a violin, an accordeon, a triangle, two drumsticks for the large and two for the small drum. There is also on the table a common sized dinner bell, an harmonica, a tambourine, and a tin trumpet about two feet in length. In front of the long table stands a round table about four feet in diameter, and of the usual hight. Circles are held in each of these rooms almost every evening, and occasionally in the day time, and are composed of Mr. Koons and wife and eight children in one room, and Mr. Tippie and wife and ten children in the other room, who set in the form of a semi-circle around the round table, the two ends of the half circle connecting with the opposite corners of the long table. Back of the circle are two benches, usually occupied by about twenty strangers and neighbors as spectators and listeners. We attended four circles on four different evenings, and had a few sittings in the day time. At these circles we were allowed to arrange the furniture, and to seat the persons present in such order as we pleased; and every facility for carefully investigating the Spiritual phenomena was afforded us."

So much for the description of this queer piece of mechanism, with its leg-of-mutton tin and copper plates. We would present the whole account (as printed in the *Universe*,) of the physical feats performed by this Spiritual machine, but as it is too long for our columns, we are reluctantly compelled to present only some brief extracts of it.

"When the circles were formed, and the company seated," says the *Universe*, "*the lights were extinguished* and the room darkened, and in abont five minutes the presence of the invisibles was manifested by several very strong blows on the table, ceiling, and walls." The sounds are stated to be like those produced by drumsticks. The violin was then tuned, during which process the keys slipped, and also the bridge, and fell on the floor. During the tuning, which was slow, one of the company found fault with the act—that it was not in concert with the pitch, and on giving it, (the violin,) in the hands of the Spirits, was soon tuned, and a number of airs played on it. "This violin was carried by *invisible hands* (true no doubt) around the room, passing near the head of the circle." They also heard "speaking, whistling, and singing, through the tin horn." The *horn* appears to be the chief medium of

Before using this horn for speaking by the spirits, it would be raised in the air, then a sentence would be distinctly articulated, then it would fall to the table. When any questions were asked, the horn would rise up and answer them.

One of the parties stated that they had been told that, "the spirits had the power to show a *spirit hand*, so as to be distinctly seen by natural eyes." No sooner was this mentioned, than "a piece of sand paper was covered with phosphorus, producing a strong, clear, and steady light, which revealed a hand entirely disconnected with any mortal body." The witness's science is clearly a little out of joint, as phosphorous does not produce a strong, clear, and steady light when rubbed on a piece of sand paper. The piece of paper it seems was carried through all parts of the room. This same hand, still holding the phosphorous paper, came and took a pencil out of the hand of a female circleist and wrote a letter to friends in Cleveland, and then it shook hands with all in the room. The *Universe* says, respecting this hand shaking, "the sceptic and the believer alike received the proffered hand. It was a hand as perfect as our own, as tangible and as real a human hand, and yet we had the most unmistakable proofs that it was not human."

We have given enough, we think, of the spiritual feats performed in this room to convince any one that they are sublimely nonsensical. When a machine is invented by a human being, it can do something—has a relation and an arrangement of parts, and although it may have some defects, it evinces design, mind, and genius. But here is a machine constructed under the direction of Spirits, who are claimed to be higher intelligences, and yet it exhibits the grossest ignorance of all science. But then it is like everything else connected with pretended spiritual revelations that we have read. It has no point, no aim, and has produced, according to the *Universe's* own statements, no result but what can be witnessed in any juggling legerdemain establishment in Gotham. It is a wonder to us that any grown up men and women in our country, where we boast so much intelligence, can suffer themselves to be deluded with such nonsense.

The Wind of a Ball.

A French officer near Sebastopol was knocked down by the wind of a cannon ball, and received a shock so severe as to cause a paralysis of the tongue, preventing his speech. He was restored by repeated shocks of electricity.—[Exchange.

[The above is certainly a singular case so far as relates to the effects produced, and the means by which this French officer was cured, but the wind of a ball has produced as curious effects before. Sir Gilbert Blane mentioned an instance which occurred in a battle in the West Indies, of a ball passing close to the stomach of a sailor and producing instant death; and another man in the same ship was prostrated from a like cause, and remained for a long time without sense or motion. In the engagement between the American and British fleets on Lake Champlain, in 1814, Capt. Downie, a British officer, while animating his men, fell dead instantly by a large shot passing close to him.

The Unfortunate Great Republic.

This ship, after being burned down to the water's edge last spring, has been rebuilt, and is now taking in her cargo for sea. As if built under some unlucky star, the boiler of a small portable engine, with which she is furnished for hoisting, exploded last week, doing considerable injury to a number of those engaged on board.

Hand Trucks.

The patent granted on the 16th ult. to Parley Hutchins, of Chester Village, Mass., for an improvement in hand trucks, consists in furnishing the truck with an elevator, working in suitable guides in the side pieces of the truck, and connected with a wiudlass for the purpose of raising the load to place it upon a cart, or any scaffold elevated above the ground. It is a very convenient and useful improvement.

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(For the Scientific American.)

Attraction—Motions of Bodies.

On page 112 there is an article headed "attraction," which, lest the "uninitiated" into physical science should be misled, should be noticed. The writer, after mentioning the different kinds of attraction, and their incomprehensibility, remarks; "could we but suspend and resume the power of gravitation at will, we could travel round the earth in 24 hours, we could then rise a little above the earth's surface, and remain like a gossamer in the air; the world would continue to revolve as it now does, upon its axis, at the rate of a thousand miles an hour," &c.

This is rather a strange idea to be entertained by one who attempts to enlighten others; suppose he should divest himself of gravity, what would become of the motion that he now has of near a thousand miles per hour, with the surface of the earth as it rotates, and the over one hundred thousand miles per hour orbital motion of the earth. By the principle of inertia, if his gravity were suspended, he would leave the earth at a tangent to his rotation, and move in a direct line, with a velocity of nearly a thousand miles per hour, which motion combined with the orbital motion of the earth, would cause him to move at the rate of over one hundred thousand miles per hour, through space, for ever, unless dashed on some heavenly body in his course. But perhaps he intends to divest himself of inertia as well as gravity, perhaps he is one of those who suppose that a body moves by its weight, after being put in motion, that a body divested of gravity will cease to move, when the impulse ceases, as it has no weight to carry it forward. Yet he would not succeed in traveling around the earth in twenty-four hours, for if his motion should cease, he would find it difficult to alight on the earth at the end of twenty-four hours, which had left him alone in space some three millions of miles from it.

But the idea of subverting the force of gravity is manifestly absurd. It is the same in all matter at all times; it is that which keeps the work of nature in regular order. The least change in the action of gravity would throw the whole system into confusion. The regulation of the worlds is not based on so precarious a foundation. He correctly supposes that the cause of attraction is past our comprehension. "What attraction is, in the abstract," says Grant, "human sagacity has not yet, and probably never will unravel. The chain of cause and effect here break off, or rather for the present, may be said to terminate in the Deity. Philosophers may, however, discover a proximate cause, and even trace the golden links through a thousand beautiful windings, but in a Divine Creator they must verge at last."

It was well, after speaking of the subversion of nature's laws, to say, "remember Mount Olivet." For the same Omnipotent Power that enacted the laws, can alone suspend or repeal them. J. B. Conger.

Jackson, Tenn.

(For the Scientific American.)

Pretended Artists.

I wish to lay before you a plain statement of facts regarding a former advertiser in the Scientific American.

About two years ago I saw an advertisement in the Scientific American, of a man wishing employment at enamelling cast-iron hollow ware. I wrote to him, asking what he could do, at the same time telling him that if he could make ware equal to Clark, of England, he could find a chance here to embark in the business. He wrote me in answer that his process was unsurpassed, his enamel for whiteness and brilliancy not to be beaten, and that he had sold his process to the Prussian government for two thousand dollars, and employ for fifteen years. He came to this place at the suggestion of a firm here and commenced experiments, and after ten months, with every facility that money afforded for material and apparatus, for experimenting and after hundreds of trials, he never brought about a passible result. Sinking the firm housands of dollars, and finally lurching his landlord for board, together with small debts too numerous to mention.

He also induced another firm to undertake the manufacture of artificial ultramarine under his directions, assuring them that he had made it, and that there was no difficulty in doing it, sinking them about five hundred dollars. I write this to caution the readers of the Scientific American from being imposed upon. I positively know that the man referred to can neither enamel hollow-ware, or make artificial ultramarine.

By publishing what portion you may think proper of the above facts to prevent further imposition, you will oblige, Yours, &c.,

B. F. N.

West Poultney, Vt., Jan. 17th, 1855.

[It is a wonder to us that any person suffered himself to be imposed upon as our correspondent describes. Three days would be enough for any one to find out the capabilities of the person he describes. Why did he not give him a certain number of vessels to enamel, ask him what he could do them for, and give him the price agreed upon, when the work was done. It is a wonder to us how so many of our people allow themselves to be imposed upon so easily by pretending scientific Troubadours. Personally we do not know anything about this pretended enameller, and we do not wish to give the names of the parties on either side, for while the one acted grossly in wrong doing, the other, our correspondent, has been very imprudent and unwise.

For the Scientific American.

The Minie and the American Expanding Bullets.

In No. 1 of your paper I notice an article copied from the *New England Farmer*, in relation to the Minie rifle ball, and its adoption in a modified form—together with an arm adapted for its use—by the U. S. Government for the use of its army, and appended thereto were the following editorial remarks:—

["How can 'our army use the Minie ball without the cup?' In that case it will not be the Minie ball. If it is meant by the above that part of the charge is to be placed in a hole in the butt of the ball, as a substitute for the Minie iron capsule to spread the lead in the barrel, then, it will be found a very inferior plan."

The idea of expanding an elongated bullet, by the expansive force of the gas generated by the ignition of the powder acting upon an iron capsule inserted in an opening in the base of the bullet, originted with Capt. Minie, of the French Artillery, some four or five years ago, and has since been partially introduced into the French and English services, with results much superior to those obtained with the ordinary musket and its ammunition. To Capt. Minie, therefore, is due the credit of originating this method of expanding such projectiles, and hence the names now becoming so familiar—the Minie rifle, and the Minie ball, and here it may be remarked that the chief distinguishing peculiarity of the so-called Minie rifle lies in the bullet and not in the rifle. The bullets may be fired successfully from any well made rifle of the proper caliber. The term Minie rifle may therefore be regarded as incorrect when thus applied. You make the inquiry, "how can our army use the Minie ball without the cup? In that case it will not be the Minie ball." I agree with you that it will not be the Minie ball proper, but the main principle of expansion remains the same with or without the cup, viz., the expansive force of the gas. As to the dispensing with the iron cup being a "very inferior plan," as you remark, I would state that recent experiments made both in this country and in England, have proved otherwise. Towards the close of the year 1852 a series of experiments with rifles and elongated projectiles were commenced at the National Armory at Harper's Ferry, by authority of the Ordnance Department—the immediate superintendence of which was intrusted to your correspondent, then connected with that establishment—and among others the Minie principle proper was thoroughly tested, but with comparatively inferior results. This fact, together with the complex nature of the projectile, and the difficulty of its fabrication, caused efforts to be made to devise an expanding bullet more simple of construction, and capable of affording better results in practice. After various trials and experiments with bullets of different forms and principles of expansion, a bullet was devised by the writer, in which the iron cup or any substitute therefor, was entirely dispensed with, and results were obtained superior to those attending any previous trials with other projectiles, the Minie proper not excepted, and so far satisfactory to the Colonel of Ordnance that an immediate trial of them upon our frontier was recommended by that officer, for use with the ordinary regulation rifle, with which experiments had been made. At the distance of 450 yards—or a little over a fourth of a mile—the figure of a man traced upon the target would almost invariably be hit. The caliber of this arm is much smaller than that of the so-called Minie rifle—in use in the Crimea—the former being ·54 of an inch, the latter ·70 of an inch diameter, and hence the amunition is much lighter—a very desirable feature.

About the same time, similar experiments were being made by order of the English Government, which resulted in the adoption by that government of a bullet in which the iron cup is dispensed with entirely, and a large amount of machinery is now being constructed in this country, by the Ames Manufacturing Co., at Chicopee, and other parties, for the English Government Establishment, at which the newly adopted model rifle-musket, &c., is to be manufactured.

It is not intended that any part of the charge of powder shall be "placed in a hole in the butt of the ball," but the powder is first poured in the barrel from the cartridge, and the bullet inserted—hollow downwards—and pushed down the barrel until it rests upon the powder. The great advantage gained by the use of all similar projectiles consists in the facility they offer for expeditious loading; the bullet goes down the barrel quite easily, yet issues from it a slugged bullet, that is, fitting closely into all the spiral grooves in the barrel. Jas. H. Burton.

Springfield, Ill.

[The object of the Minie bullet is simply to allow of more rapid loading by soldiers, as clearly stated by Mr. Burton, but we never could divine how a rifle could be made to carry further or more accurately, as stated in so many papers, with a Minie than with a common rifle, having a Clark muzzle. In reference to the opinion we expressed as referred to by our correspondent, we only referred to a hollow ball charged inside, for the question was presented to us in this light, not as has been done in this communication, and we reasoned that the charge expanding on all sides of the bullet would force it into the grooves, and no doubt slug it, but in doing so, would offer such a resisting side force to its passage out, as would nullify, in a great measure, its useful effect.

See engravings of various bullets, page 173, Vol. 7, Scientific American.

Window Blinds.

In our list of claims on another page there is one for an improvement in window blinds granted to Henry Blakely, of this city. The nature of this invention consists in having brass or other suitable metallic tenons cast on the ends of the slats which are made of thin iron plate, and inserted in holes in the stiles, and riveted or headed on the outside, but free to turn in their sockets, and operated otherwise in the usual way. By this plan of constructing blinds, they are made very durable, and their cost does not much exceed those made of wood.

Grafting the Lilac on the Ash.

The Maine *Farmer*, in answer to our queries respecting grafting the lilac on the ash, Mr. M. Stanley, of Winthrop, informs us that he tried the experiment by engrafting scions of the lilac bush upon a young ash in the usual way. They took well, and grew luxuriantly, but were unfortunately broke out by a high wind—[Baltimore Sun.

Recent Foreign Inventions.

Stannates of Soda, Potash, and Ammonia. Edward Haeffely, Radcliffe, Lancashire, England, patentee—To form stannate of soda, the inventor introduces into a metal pan litharge or red lead (other metallic oxyds, hereafter named, will produce the same action, but an oxyd of lead is preferred,) and a solution of caustic soda of commerce, containing about twenty-two per cent. of alkali, and reduced by the addition of water, or the washings hereafter named, if required; but this dilution is not necessary to the operation, excepting to keep the stannate of soda in solution, and above the precipitate. A plombate or plombite of the alkali is thus formed—heat being applied for the purpose of hastening the operation. Feathered metallic tin is then suspended in a bag, or thrown into the mixture, when immediately the oxygen from the alkaline solution of the oxyd of lead passes to the metallic tin, forming stannic acid, which unites with the alkali, whilst metallic lead, in a spongy state, is precipitated. The proportions used are 16 lbs. of tin, 45 lbs. caustic soda, at 70° Twaddle, from 70 to 80 litharge (or 54 red lead).

When the tin has entirely disappeared, which will be after several hours' boiling, say from four to five, depending, however, upon the granulated state of the tin, the fire is withdrawn, and the precipitate allowed to settle. The clear solution of stannate of soda is then decanted, and the precipitate washed with one or two waters (the waters being used for reducing the alkali in future operations, as above stated). The precipitate is thrown on a hot plate of iron or other metal, and the temperature raised to near redness; when it is speedily re-oxydized by the atmospheric air; litharge or red lead being thus formed at pleasure, according to the heat and time occupied in the oxydation. The litharge or red lead may again be used for another operation of producing stannate of soda. The patentee also proposes to substitute for the oxyd of lead other metallic or organic oxyds possessing the property of transmitting their oxygen, or part of it, to a more oxydizable metal, like hydrate of peroxyd of iron, hydrate of peroxyd of manganese, manganate of soda, indigo, and others. The precipitates in these cases will be protoxyds of the bases, which may be converted, by any known means, into peroxyds, to be again used. The advantages of this process are cheapness, rapidity, and regularity of results; and the stannate so formed is of an improved purity, giving superior results to that formed by the known processes, for the purpose of printing or dyeing textile fabrics. Although stannate of soda only has been mentioned in the above description, the same instructions will hold good for the other alkali, by substituting potash or ammonia.

A New Stock Company.

A recent number of the London *Court Journal* has the following hit on American schemes, which we think pretty good:—

"The American papers state that an individual in Michigan proposes to build a spiral staircase down the Mælstrom, in order to recover the valuables that have been sucked into that immense receiver during the last two hundred years. He proposes to make a joint stock concern, under the name of 'The International Spiral Staircase Treasure-seeking Association.'"

Photographic Bills.

Many of our cotemporaries have been describing the dangers likely to arise from improvements in photography applied by a Cincinnati artist to the copying of bank bills. If bills are printed of various colors they cannot be copied.

Machine for making Match Boxes.

Our readers would notice that the claims of the patent granted on the 16th ult. to R. L. Hawes, for improvements in machinery for making match boxes, were the longest that had yet appeared in our columns. Wm. Gates, of Frankfort, N. Y., has one of these machines in operation, and is making boxes on a very extensive scale by it.

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New Inventions.

Machine for making Brass Kettles.

On the 9th ult. a patent was granted to Lyman C. Camp, of Berlin, Conn., whose claims were published in our list of that date. As the invention possesses considerable novelty, a more extended description of its nature, than can be obtained from the claims, will no doubt be of considerable interest to all who are engaged in the business of making brass kettles. In Mr. Camp's machine, the disk of brass, out of which a kettle is made, is brought to its proper form by a process widely different from any heretofore practiced for effecting a similar result. The most common, if not the only processes heretofore employed, has been stamping, hammering, and spinning, the last process being performed by machinery for which a patent was granted to H. W. Hayden, on the 16th Dec., 1851. By all these processes the vessel is brought to its shape with the use of dies or *formers*, and several of these are used in making one vessel complete. The process, as performed by this new machine, differs from the described plans, inasmuch as it neither requires a die nor former to produce the sides of brass vessels—the formation of the sides of a kettle from beginning to the end being effected upon the disk of metal without changing any part of the machine, a simple adjustment at certain stages of the process being all that is necessary in any case. A pair of rollers like those commonly employed for rolling metal, are combined with a pair of clamping mandrils, which hold and constitute an axis for the metal disk, which is situated in the same plane as the rollers. The metal disk is made to rotate upon the mandrels while placed edgewise between the rollers, and submitted to their action; the axis of the rollers and the axis of the disk are adjustable at different angles to each other, and the rollers having a movement in the line of their axes simultaneously with their rotation, or the axis of the disk having such a movement as to produce such a change in the relative position of the parts as the movement of the rollers. By the revolution of the metal disk between the rollers, and the last named movement of them, that part of the disk which is to form the sides of the vessel is distended, or stretched radially, and compressed circumferentially, and at the same time bent to form an angle with that part of the disk which is to form the bottom of the vessel, and which part of the disk remains at the end of the process in the same state as at the commencement. The patent is owned and controlled by Messrs. Phelps, Dodge & Co., of this city.

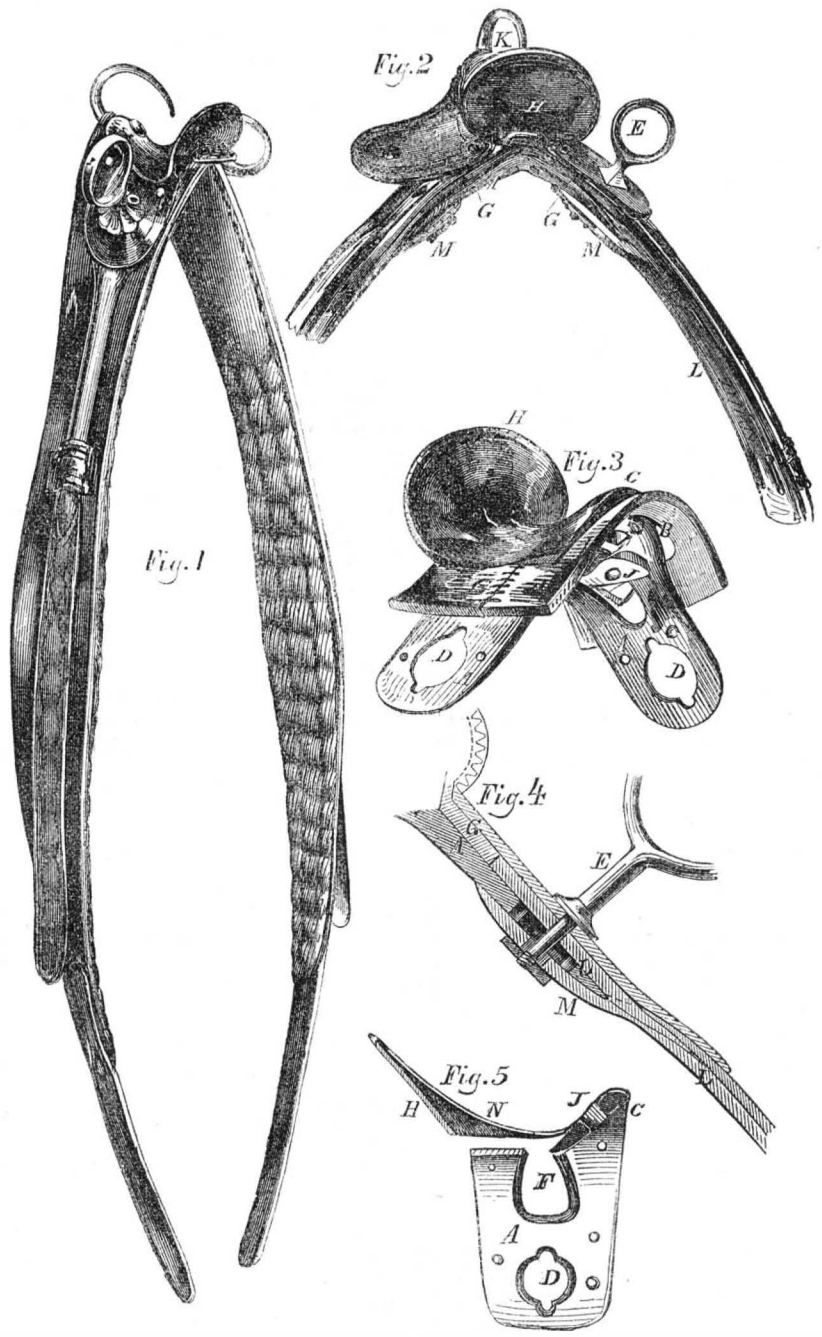
Improvements in Soldering.

In the list of claims of patents granted on the 23d ult., the one of W. J. Stevenson, of this city, for soldering cans expeditiously, and by persons of but small experience or practice, deserves further notice. It is intended only for soldering straight seams, such as the sides of cans, or gutters. The can or tin pipe to be soldered, is placed upon a mandrel which is divided longitudinally by a line running slightly oblique to its axis. This is for allowing the mandrel to be contracted after the seam has been soldered, to allow the can or article to be easily removed from it. The mandrel is secured in the jaws of a clamp, the upper ends of the said jaws being so formed that when brought together they form a channel in line with the seam to be soldered, so as to receive the solder and retain it where its presence is required when melted. By this method of confining the solder, a neat bead is formed on the outside of the can. A strip of wood is placed in the mandrel under the seam of the joint, which, being a good non-conductor, makes the solder retain its heat longer, and allows of it flowing into the seams more freely.

Improved Oscillating Engine.

The improvement in oscillating engines, for which a patent has just been granted to George F. Wood, of Ulysses, N. Y., (whose (claims will be found on another column consists in having two passages in the trunnions—an induction and eduction port—and also two passages in the steam and exhaust pipe, and between them are two valves operated by the machinery, and made to open and close the passages more rapidly, so as to cause the quick induction and eduction of the steam. The nozzles of the steam and eduction pipes, are fitted into the back of the valves, the latter being kept in place by the former, and held in such a manner as to turn freely, but at the same time fit steam tight, both around the nozzles and the conical valve seats in the trunnions of the cylinder. Both valves are alike, each has three ports, equi-distant and within the same circles, and the seats in the trunnions have each two ports arranged opposite each other. The change in the position of the valves to reverse the engine is effected by a forked lever. The valves always move in an opposite direction to that of the cylinder, for the purpose of opening the cylinder ports quickly by causing the ports of the valves to move towards those of the cylinder.

IMPROVED HARNESS SADDLES AND TREES.



The annexed engravings represent an improvement in first class harness saddles and trees, for which a patent was granted to Robert M. Selleck, of this city, on the 7th of last November.

Figure 1 is a perspective view of the improved saddle; figure 2 is a perspective view of a saddle partly finished, viewed from the rear; figure 3 is a perspective view of the tree as prepared for the saddler to work upon; figure 4 represents one-half of a partly finished saddle in section, and figure 5 is a vertical longitudinal section, showing the tin seat of the saddle. The same letters refer to like parts.

A represents the cast-iron frame or tree, upon which the saddle is constructed; B B are the shoulders cast on the sides of its head, C; D D are circular holes for the terrets, E E, to pass through, as represented; F is an oblong slot cut through its top for a tongue or tack-hold on the gullet piece to pass through; G is the gullet piece. It is provided with an opening in its center, and fits over the tree. This gullet piece fits against the shoulders, B B, and its top surface stands even with the head, C. Owing to the shoulders being formed on the tree, the full thickness of the leather forming the gullet piece can be employed without increasing the thickness of the saddle. The gullet piece can also be extended back under the cantel, H, and crupper, I, and be made to form part of the flaps, as shown. If the shoulders were not formed on the tree, the gullet piece would have to be skived off, and fitted in and tacked to the front of the frame or tree after the flaps have been fitted in their places, and the edge of the piece uniting the flaps at the back of the tree will also have to be skived off and fitted in and tacked to the back of the tree, as is done in constructing saddles on the common wood trees. By this arrangement the front and back of the gullet piece on the common tree can be made in one, and of the same thickness as the flaps, L L, and owing to no tacking and fitting-in being necessary, can be arranged on the frame by the tree maker before the tree is delivered to the saddler, and made to serve as a tack-hold or soft substance for the saddler to work upon, and when the saddle is completed, form part of the flaps. By thus fitting the gullet piece the bolts which secure the crupper will serve for securing it in its place, and the back edge of the leather which covers the saddle, can be secured under the cantel, instead of to the back edge of the tree, and considerable time and labor saved, and a more solid and also a much handsomer and neater appearance given the back portion of the saddle; J is the tongue or tack hold, to which the front end of the leather which covers the seat is tacked. This tongue forms part of the gullet; it passes down through the slot, F, and under the head, C, of the tree, and is secured in place by the gullet hook, K; M M are tongues formed on the flaps, L L. These tongues serve as blocking, and also as receptacles for the sockets of the terrets, it passing under the frame or tree, A, while the flaps lay on it; N, figure 5, is the false tin seat, arranged on the cantel (which owing to its being formed by itself, can be made of any desired shape) and also on the frame or tree, A. As this seat is made of tin, and can be struck up on a die, the part which fits the cantel may be made to form a perfect circle—instead of having its sides nearly verical, as is the case when the cantel and seat are cast in one piece.

The nature of the improvements consist, 1st, in a cast-iron saddle tree having a depression formed on each side of its head, and a gullet piece constructed and arranged upon it in such a manner that it can be fitted flat on the tree, with its top surface even with the head of the same, without the necessity of its being skived down and tacked to the front and back of the tree, as when placed on a wooden tree. The gullet piece can also be extended back under the cantel and crupper, and secured, and a portion of it can likewise be secured and carried under the head, and by the gullet hook. By extending the gullet piece backwards it is made to form part of the flap, and owing to its being thus extended, and a portion of it carried under the head, it serves as a tack hold to work upon in covering the seat with leather. The second improvement consists in providing the flaps with tongues, which pass under the lower parts of the frame while the flaps pass over it. By thus contructing the flaps, no other blocking than, that afforded by the tongues is required under the frame. A third improvemennt consists in making the seat of tinned sheet iron, and separate from the cantel.

These improvements on saddles and trees enables the most ordinary workman to make a first class saddle on an iron tree. Heretofore none but the best workman with safety could be put to work on a first class saddle. Saddles can in this manner be made of greater symetry with increased strength and durability. The tree itself can be afforded at a much less cost than heretofore, and a saving of about half a days' labor on each saddle is effected, and thereby saddles of the first class can be afforded at the same price as one of the second class.

More information may be obtained of Mr. Selleck at his place of business 253 Pearl street, this city.

Improvements in Separating Gold.

The improvement for which a patent was granted on the 16th January, to John S. Addison, of this city, for a new method of using quicksilver to extract gold from quarts or earthy matter, has for its object the distribution of such a quantity of quicksilver that the liquified paste of auriferous ore may be forced through it in a very finely subdivided state, so as to bring every particle in contact with it. Apparatus now in use for amalgamating gold with quicksilver, mostly operate on the principle of bringing the auriferous matter in contact with the surface of the quicksilver, hence they have to employ a very large quantity of mercury, or considerable of the gold may pass away in a free state. By this new process the mercury is distributed over the surfaces of strips or tubes of silver, or some other suitable metal so packed and arranged in any suitable vessel or receptacle as to leave small interstices between them, and to admit of the auriferous matter with a suitable quantity of water to permiate and flow through or between them.

Currants Grafted on the Maple.

A correspondent of the *Rural New Yorker* says, that he transplanted into his door-yard a young, thrifty maple, and engrafted into it scions from a currant bush. They grew well, and when ripe looked very handsome. He says that you must not graft until the sugar water ceases to run.

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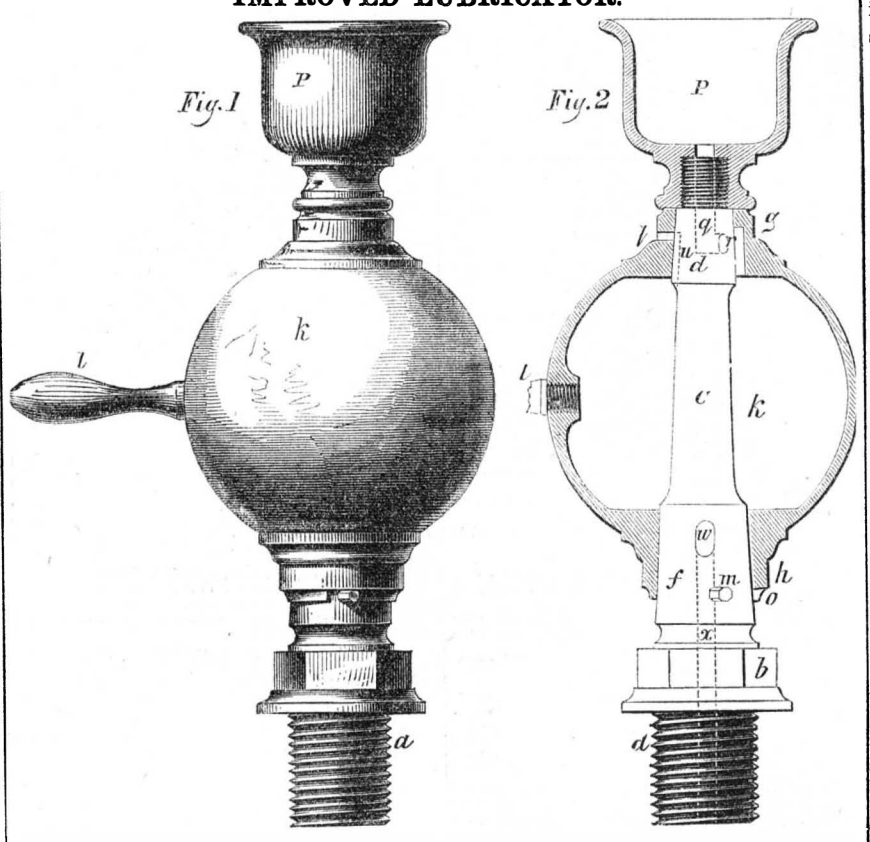
Scientific American.

NEW YORK, FRBRUARY 3, 1855.

The Age of the World.

A question of great importance with divines and men of science at the present day, is that of the age of our planet, and the different changes which have taken place upon it, as related in Genesis. One class contend that the different acts of creation took place exactly as described in the first chapter of Genesis, in six solar days, and that all things were made out of nothing in that time. Another class believe that our planet was in existence for thousands of years prior to the first act recorded in Genesis, that it had undergone vast changes, and that it had been long in confusion, and was bereft of life, when the command went forth "Let there be light." This class also believe that the successive acts described in Genesis took place in six common days, furnishing the world with the exact orders of creation as there described. Another class believe that the successive acts of creation mentioned in Genesis, took place in the exact order there described, but that instead of the days there mentioned being solar days, they were *indefinite periods of time*—some of them of great length—perhaps sixty thousand years. This latter class embrace the greatest number of learned geologists and divines. In the last number of the *Bibliotheca Sacra*, the Rev. John O. Means, of East Medway, Mass., presents his views at great length on this subject, and takes the latter view of the question, namely: that the days mentioned in the first chapter of Genesis, if interpreted to mean *indefinite periods of time*, would reconcile both science and the Scriptures in every particular. He employs some strong arguments in favor of this view of the question. Thus, the sun, moon, and stars, are said to be created on the third day, therefore, the two previous days could not be one of our solar days, embracing one revolution of the earth on its axis in twenty-four hours, with the sun to rule the day and the moon to rule the night. This argument is incontrovertible. But what was the cause of light before the sun was created. He sees no difficulty in this. He says, "the material universe is full of light, ready to be worked at a word. Chemical action on a vaster scale than man can follow, is taking place every moment, and floods of light are poured forth. Combustion is attented with light as well as heat." "It may sound strange," he again says, "to say that the most intense light is to be found, not *on* the earth, but *in* it. The whole of the sun's rays which reach the earth, gathered to a focus, would not be so intensely light as the center of the globe. It seems pretty certain that within the crust of the earth, is a globe of fire, at least two thousand miles in diameter." This opinion costs neither him nor any man of science anything whether it be true or false, but he departs from reason and logic, by endeavoring to establish one hypothesis by setting up another. There are no positive proofs of the earth being a crusted ball of fire. We are not dependent on the sun for light, as he has clearly stated, but he does not seem to understand its true theory. It is produced by the vibrations of a subtile medium diffused throughout space. Our planet is self-luminous, but in a degree less so than the sun, for there is one glory of the sun, another of the moon, and another of the earth. Man's eyes are constructed to see objects only by a great quantity of intense light; but some beasts and fowls have their eyes constructed to range the forest and field by night as freely as man does during day, while during sunlight they can scarcely see at all. A tribe of Africans also—the Bosjesmen—remain in their caves during day, and search for their food during night. From habit, we presume, they have become nocturnal roamers—men-owls—thus showing that natural light belongs to our planet; the unceasing throbbings of its particles produce continual light; this was the way, no doubt, that light was produced in the early days of the earth. Hugh Miller brings forward some strong arguments in favor of the great age of our planet, and mentions a number of geological changes requiring tens of thousands of years to accomplish, which could not have taken place in the short period of six thousand years, as is believed by those who adhere to the solar six days interpretation of the Genesis narrative of the creation. Sir Charles Lyell believes that it must have taken 67,000 years to form the delta of the Mississippi, and 35,000 years for the Niagara river, to form its present channel from the Falls to Queenstown. Nearly all the eminent geologists believe this, and they consider they have facts to prove it, so strong, that they cannot be gainsayed. Mr. Means reasons strongly to prove that the meaning of the word day in the first chapter of Genesis is an indefinite period of time, and makes out a very strong case in favor of the world being perhaps a million years of age, according to the Mosaic account of creation.

IMPROVED LUBRICATOR.



The annexed figures represent an improvement in apparatus for lubricating the valves and pistons of steam engines, for which a patent was granted to Joshua Regester, on the 5th of last December.

Figure 1 is an outside elevation; and figure is a vertical section of figure 1. The same letters refer to like parts.

The nature of the invention consists in combining the reservoir for containing the oil, or lubricating fluid, with a central conical spindle or stem, by means of two sockets or bearings, one of which is at the upper, and the other at the lower part of the reservoir. In these sockets there are passages corresponding with other passages or vents in the central stem, and are opened and shut by moving the reservoir around the central stem. One of the upper passages or vents controls the admission of the oil into the reservoir, while at the same time the other passages of the upper socket permits the air to escape from the reservoir while the oil is being poured into it. And the passage in the lower part of the reservoir and central stem controls the admission of the oil into the place to be lubricated. These passages are so placed relatively to each other, that when the upper passages are open, the lower passages are closed, it is therefore impossible for both sets of passages to be open at one time, which precludes the possibility of the contents of the reservoir being forced out by the pressure of the steam, which would take place were both the top and bottom passages open at the same time.

The apparatus is secured by screwing the shank, *a*, into the steam chest, or other part of the engine or machine requiring internal lubrication, and to facilitate this purpose, the part, *b*, is made with flat sides, upon which the jaws of a wrench may take hold. In figure 2, C is the central stem, of which *d* is the upper, and *f* the lower conical bearing, these bearings fit accurately into their respective sockets, *g* and *h*, of the reservoir, *k*, which is moved around a central stem by means of the projecting handle, *l*, which is screwed into the reservoir, *k*. The extent of the motion of the reservoir necessary for opening and closing the several passages is regulated by the stud, *m*, and may be about one-quarter of a turn: a portion of the socket, *h*, is removed so as to present the two shoulders, *n* and *o*, to come against the stud, *m*, and thus limit the vibration of the reservoir, *k*; if on bringing the shoulders, in contact with the stud, *m*, the upper passages should be open, then will the lower passages be shut, but on reversing the position of the reservoir, and bringing the shoulder, *o*, into contact with the stud, *m*, then will the lower passages be opened and the upper passages be closed, in which case the oil or fluid within the reservoir will pass down through the central stem into the cavity of the machine requiring lubrication.

In filling the reservoir with the oil or lubricating fluid, it is first poured into the cup or funnel, *p*, from which the oil or fluid passes to the reservoir, *k*, by means of the vent or opening, *q*, which first passes centrally down through the stem till it meets the lateral vent or opening, *r*; when the opening, *r*, is opposite the slot, *s*, as shown in figure 3, the oil flows from the cup or funnel, *p*, into the reservoir, *k*. But when this receiving passage between the oil cups, *p*, and the reservoir, *k*, is open, there is also open the small vent, *t*, through the side of the socket, *g*, for the escape of the confined air, which would otherwise prevent the ingress of the oil or other fluid to the reservoir. This vent, *t*, is also brought into communication with the reservoir by means of the slot-form passage, *n*, cut out of the side of the upper bearing, *d*. The oil or fluid within the reservoir, *k*, passes off to the cavity of the machine requiring to be lubricated by passing down through a slot from a passage communicating with the opening, *w*, in the side of the lower bearing, *f*, and connecting with the central perforation, *x*, in the lower part of the stem, C.

The advantages of this improved lubricator over those which have separate cocks, and requiring separate manipulations, consist in its compactness of form, certainty of operation, and simplicity of movement, the mere revolving of the reservoir around the central stem answering all the purposes of opening and shutting the air cock, the receiving cock, and the discharging cock, and that, too, without error or mistake.

More information may be obtained by letter addressed to Clampitt & Regester, proprietors, No. 53 Holliday street, Baltimore, Md.

Saleratus in Bread.

In the N. Y. *Tribune* of the 24th ult., there is a sensible article by Dr. Alcott, of Auburn Dale, Mass., on the use of saleratus—in which he presents a number of facts to prove that the use of saleratus for domestic baking is dangerons to health and life, and that it has caused death in many instances. He mentions the case of a number of students at Williamstown College, Mass., who boarded in the house of an indigent female that used saleratus very freely in cooking, to make puddings, &c., light, which he believes led to the breaking out of a fearful disease among them, by which two died. Drs. Sabin and Smith, of that place, attributed this disease to the saleratus in their food. He also states, that in a family of about ten persons, it is not an uncommon thing, in many places in Massachusetts, to use about a pound of saleratus per month. He believes that sub-inflammation of the alimentary canal is produced by the free use of this alkali, both in children and adults, and that of the 300,000 children under ten years of age, who die annually in the United States, at least 100,000 might survive but from the effects of saleratus.

From his statements it appears to us that those whom he describes as using saleratus for cooking, to make light biscuits, puddings, &c., do not use acid with it, but simply the saleratus. Now this alkaline substance will not make light biscuit unless it is used with an acid or some kind. The soda and acid unite, setting the carbonic acid gas in the saleratus free, thus producing effervesence—not fermentation—which raises the dough and makes the bread spongy, leaving a bitter salt in the bread, (the tartrate of soda, if tartaric acid is used with the saleratus). There must be great danger indeed, in such a free and ignorant use of saleratus, without an acid, as a pound per month in any family. It is a common thing, however, in the country, to use sour milk with the saleratus, and there is not so much danger in its use when so combined, but, we must say, that saleratus, and those combinations of chemicals which merely produce effervesence, and not vinous fermentation, should not be used in cooking. Experience is the only way to tell what is good and what is evil to use as food or drink, and so far as our experience goes, and we have paid close attention to it for the past three years, we must conclude that yeast alone should be used for *raisings* in domestic cookery.

Wood Gas Controversy.

We perceive that Prof. C. G. Page, attorney for Dr. McConnel, publishes a long advertisement in the Washington *Sentinel*, relative to the claims of his client, and Lieut. Porter's for making gas from wood. An engraving with the specification of Lieut. Porter's patent will be found on page 37, this volume of Scientific American, where his full claims are presented and the whole truth of the matter set forth. All who wish proper information on this subject will find it there.

The Ericsson.

This ship, we perceive, is still reported to be getting in her new steam engines, which have been substituted for the hot-air ones. It is supposed that she will be ready for sea about the middle of next month, as 150 men are employed on her. The old proprietors, who were said to have asserted, "they were perfectly satisfied with the success of the hot-air engines," are the proprietors still, thus showing a liberal consistency in all their changes.

Locusts.

Dr. Gideon B. Smith, of Baltimore, says the seventeen year locusts will make their appearance this year along the eastern coast of Maryland, and to Carlisle, Pa., and also in Kanawha, Va., and Lexington, Ky. They can be found in all the above places, wherever trees, shrubbery, or forests grew in 1838, by digging down one or two feet. For more information on this subject, see Dr. Smith's illustrated description of this locust, on page 212, vol. 6 Scientific American.

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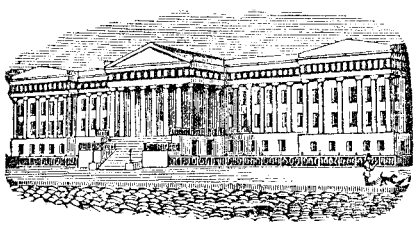

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from he United States Patent Office.

FOR THE WEEK ENDING JANUARY 23, 1855.

HERNIAL TRUSSES—W. M. Bonwill, of Camden, Del. : I do not claim the hinges, F F, the adjustability of the padsor the form of the hoop separately ; but I claim the combination of the peculiarly formed hoop with the umbilical pad and strap, for the purpose of preventing the movements of the body from displacing the pad in either umbilical or in inguinal hernia, as set forth.

GAS HEATER—W. F. Shaw, of Boston, Mass. : I am aware that argand burners and some fire places have their flame or fuel chambers supplied with an internal and external currents of air. I therefore do not claim the mere application of a means of applying air externally to a flame or mass of fuel in a chamber, although in my apparatus I accomplish this ; but while I obtain such an advantage from an external current of air when let into the chamber, C, I secure a further effect, viz., that of supplying air to the surplus chamber or reverberatory dome, F, it will be seen that the chamber, C, has an important relation to the surplus chamber in the gas burning apparatus.

I therefore claim the arrangement and combination of the air pipe, A, the perforated distributor, B, the air chamber, C, the flue pipe, E, and its surrounding chamber of combustion or reverberatory dome, F, provided with an outlet pipe at or near its lower end, the said reverberatory dome or chamber being made to operate in connection with both the internal and external air ducts and for burning the surplus or volatile products, as specified.

ROLLERS FOR CORRUGATING SHEET METAL.—S. G. Booth, of New York City : I do not claim making the rollers of adjustable sections, for the purpose of repeating bending operations upon a piece of sheet metal ; nor do I claim making rollers of two or more parts.

But I claim making the swages and dies for forming beams of wrought iron of numerous thin sections, so that one, two, or more sections can be removed to produce beams of different forms, for the purpose of saving the expense and inconvenience of a multiplicity of pairs of swages and dies, all substantially as set forth.

HAY MAKING MACHINE—G. A. Brown, of Middletown, R. I. : I claim the construction of a machine in manner and form as described, or in any other manner or form substantially the same, applying the power directly from the driving wheels to the spreading apparatus, thus saving the loss of power caused by friction in a series of wheels, using coiled or spring teeth, and the application of such machine to the purpose of spreading and turning hay.

INSTRUMENT FOR CUTTING OUT STONE—H. J. Brunner, of Nazareth, Pa. : I claim cutting out slate or other stone from quarries by means of a cutter stock, B, provided with cutters, D D, and having a reciprocating motion given it by means of a toothed wheel, P, in which pinions, O N, are made to gear alternately in consequence of the arrangement of the teeth on the periphery of said wheel, P, as shown, said cutters, D D, having the proper feed motion given them by the pawls, F F, ratchets, E' E', pinions, E E, and racks, C C, or other substantially equivalent device operating as set forth.

[See notice of this invention in No. 17, present Vol. SCI. AM.]

ROLLERS FOR CURTAINS—D. H. Chamberlain and John Hartshorn, of Boston, Mass. : We do not claim the application of a torsion spring to one end only of a curtain roller. But we claim our improved manner of applying the spring to the curtain roller, that is, extending it axially entirely through the roller and its two journals, and affixing it to the roller, and both its brackets (or journals extended from and fastened to them) substantially as specified, such not only affording advantages of which a long spring has over a short one, but also important facilities in applying the spring or modifying its tension as occasion may require.

CARRIAGES—George R. Comstock, of Manheim, N. Y. : I claim the employment of fills in combination with a pole, which pole has attached to it an elliptic spring, capable of a motion around the pole, to which spring, as well as to the fills, the draught animals are to be attached by the harness, substantially as set forth.

I also claim the arrangement of the fills by which the space between them can be enlarged or contracted to adrpt it to one or two horses, as may be required, the same to be effected by a right-angled elbow on the rear end of each fill, having several bolt holes through which it can be bolted to the frame work of the carriage, the fill turning as on a pivot in a loop, attached to the outward extremity of the said frame work, substantially as set forth.

Also the combination of the united fills, pole, and elliptic spring with a carriage for the purpose and in the manner substantially as set forth.

CARRIAGE SEATS—G. R. Comstock, of Manheim, N. Y. : I claim the method of adjusting the load carried in two-wheeled vehicle so as to keep the pressure upon the animal drawing the same, equal or nearly so, whether the carriage be moving upon level or uneven ground, by shifting the seat or upper body backward or forward, using an axis with toothed quadrants operating upon toothed racks attached underneath said seat or body (or by the use of any mechanical equivalent) said axis being manouvered by a lever which passes up through the arm of the seat or upper body, substantially as set forth, the said mechanical apparatus being in combination with the carriage body and seat.

LOOMS—James Eccles, of Philadelphia, Pa. ; I claim moving and holding the picker forward in movable shuttle boxes, for the purpose of stopping the shuttle thereby, and causing the picker, after having stopped the shuttle to recede, substantially as described and for the purpose set forth, by the action of the lever, A, and pin, E, or their equivalents.

MEANS FOR HOLDING WINDOW BLINDS—H. A. Frost, of Worcester, Mass. : I claim the application to window blinds of a semi-circular spring rod which may bear upon a wide staple beneath the blind which acts upon it at all times, as described, so that the blind may be retained in any desirable position.

MARQUETRY—L. F. Groebl, of Philadelphia, Pa. : I claim the marquetry described, in which the different pieces of which it is composed, are firmly united at their adjoining edges, so as to secure the advantages described. But I make no claim to the invention of tonguing and grooving, nor to forming an ornamental design or style of decoration, by making combinations of wood of various forms or colors.

HOT AIR FURNACE—Michael Greenebaum, of Chicago, Ill. : I claim the arrangement of the cylinder, l, in the drum, k in combination with the perforated partition, n, and the pipes, p q r, and valve, s, for the purpose of regulating and equalizing the radiation of heat of hot air furnaces, substantially as set forth.

CUTTING AND GRINDING VEGETABLES—Wm. H. Harn, of Carlisle, Pa. : I claim a slicing or cutting apparatus, consisting of a cylinder armed with knives, and working in connection with stationary knives, substantially as described, in combination with a crushing or grinding apparatus, substantially such as described, or the equivalent thereof, the whole being so constructed as to slice the fruit or vegetables and then crush or grind them in the same machine, as described.

BOOK BRACE—Wm. Ives, of Buffalo, N. Y. : I claim the combining with the brace the pointed spring bolt and spurs, substantially in the manner and for the purpose described.

I also claim the application of the adjustable slide to the brace, substantially in the manner and for the purpose set forth.

LIFTING JACKS—S. G. Jones, of Fitzwater Town, Pa. : I do not claim either of the three parts, A B C, irrespective of their relation and adaptation to each other.

I claim the peculiar manner which I combine the main post, A, the sliding piece, B, and the bent lever, C, the fulcrum of the said lever, C, being placed near the lower end of the main post, and its weight point, e, adjustably connected with the sliding piece, B, by means of the holes, f, near the lower end of the said sliding piece, whilst the upper end of the same piece is adapted to slide within the loop, c, formed on the upper end of the main post, all as and for the purpose described.

ROLLING IRON SHUTTERS—Chas. Mettam, of New York City : I do not claim as new or irrespective of the relative position of the protruding arch, and the description of shutter to which the described form of slat refers, giving a slat a curved or arched form to increase strength, as a different disposition of the protruding arch and combination of curves have before been used in blinds otherwise arranged than to roll up.

Nor yet do I claim as new in itself, causing the edges of the slats in rolling shutters to have a broad flat bearing or lap, the one over or upon the other to exclude dust, &c., as the ordinary flat slat rolling shutter possess that feature.

But I claim the rolling metal shutter, operating as described making the slats of the form substantially as specified, that is to say, with an exterior protruding arch, a, at their center combined with flat laps or bearings, b, at their edges, the slats being arranged in relation to each other, and united together essentially as set forth, by which configuration the shutter may be rolled up in a less compass, the labor of rolling up reduced, and the many other advantages set forth.

[In No. 9, Vol. 10, SCI. AM., may be found a description of this invention.]

METAL FOLDING MACHINES—Daniel Newton, of Southington, Conn. : I claim the application to folders (for sheet iron, tin, copper, &c.) of three or more pairs of steel fingers, all of the same shape, one half of which are fastened to the plate which turns the fold, and the other half secured in a hollow underneath the same, the whole acting together, thereby drawing and holding the plate firmly on the metal whilst the fold is turning.

I also claim the gauges attached to the plate by which the width of the fold is regulated, substantially as described.

MACHINES FOR WASHING PAPER STOCK—H. W. Peaslee, of Malden Bridge, N. Y. Patented in England Sept, 20, 1854 : I do not claim as new the revolving screen cylinder, and stationary trough, with or without elevating hooks or lifters, arranged spirally or otherwise in the cylinder for the purposes specified, nor yet otherwise than as arranged and combined, the oblique curbs or pieces to direct the discharge from the cylinder, as such devices, differently arranged, employed, and combined, have before been used in ore washing machines.

But I claim, in the washing of paper stock, the arrangement substantially as shown and described, of the oblique curbs, K, in continuous succession round the open discharge end of the revolving screen cylinder, and forming channels between them to conduct the stock continuously, as the cylinder rotates beyond the discharge edge of the cylinder, when combined to operate together with elevating hooks, d, within the cylinder, and serving to retain a copious supply of water in the cylinder for the proper washing of the stock, and to cheek the run of the stock through the cylinder to a speed in accordance with the conveying action of the cylinder or its elevating hooks, d, as specified, to insure the full and regular action of the hooks on the stock, in the manner described, the whole operating together as and for the purpose set forth.

[This is a valuable invention, which has been patented in several foreign countries.]

FIRE ENGINES—A. W. Roberts, of Hartford, Ct. : I do not claim the brakes and levers ; neither do I claim the valves or cylinders.

But I claim the arrangement of the valves of pumps for fire engines, and other purposes, in the manner substantially as described.

Also the arrangement of the compound brake and levers, substantially as set forth and described.

COMPOUND RIFLING MACHINE—E. K. Root, of Hartford, Conn. : I claim the method of giving the motion to the cutter stocks for giving the increasing twist, by means of the connecting rod or its equivalent turning on a fixed center, and describing a circle at the point of its connection with the cutter carriage which moves in a tangent line, substantially as specified.

I also claim combining a series of cutter spindles with the said connecting rod or its equivalent, by means of a sliding rack connected with the said rod, and engaging pinions on the said spindle, substantially as described.

I also claim in combination with the mandrels that carry the barrels, the slide, and its appendages, to act upon and turn the mandrels, in combination with the dogs for locking and holding the barrels during the rifling operation, the said dogs being operated by the said slide, substantially as specified.

I also claim the mode of operating the series of stops to insure an accurate adjustment of the series of cutters, substantially as specified.

And finally, I claim the adjustable crank pins for operating the cutter carriage in combination with the mode of forming the connection of the connecting rods with the carriage by means of slides governed by adjusting geared screws, substantially as specified, as a means of adapting the machine to the rifling of barrels of various lengths without the necessity of changing the relations of the mandrels, and the stops for setting the cutters, as set forth.

APPARATUSES FOR SUPPLYING FURNACES WITH PULVERIZED METAL—Eloy Schmitz, of New York City : I claim arranging within the blast pipe of a furnace or other fireplace another and smaller pipe or tube governed by valves to admit and cut off the blast, substantially as described, when this is combined with the charging tube, also governed by a valve, substantially as specified, so that when the blast is forcing the pulverized substance from the tube within the blast pipe, the blast shall be cut off from the charging tube, and when thee harging tube is open for the liberation of the charge the blast shall be cut off by the valves below, as set forth.

And I also claim, in combination with the above, charging and discharging tubes governed by valves, the employment of a branch tube governed by a valve opening to the atmosphere, to prevent the pulverized substances from being held in the charging tube, by any excess of pressure which may be due to the entrance of the blast during the time the valves of the discharging tube are opened, as set forth.

And I also claim, in combination with the discharging and charging tubes, the employment of the conductor, and the punch rod, substantially as described and for the purpose set forth.

FEEDING MORTISING MACHINES—R. P. Benton, of Rochester, N. Y. : I claim feeding the stuff to be mortised to the cutter, b, in the manner substantially as shown, viz., by means of a rotating screw rod. s, operating upon a slide, R, and an adjustable crank, Q, which gives a reciprocating motion to the slide, X, the above parts operating conjointly, as shown, and for the purpose as set forth.

[See notice of this machine in No. 11, Vol. 10, SCI. AM.]

COMPOUND CROW BAR—I. J. Coles, of Piermont, N. Y. : I do not claim the combination of the two levers, B C, as such a combination is well known.

But I claim the combination of two levers, B C, the latter having a circular projection, G, on its lower side, with the head block, A, in the manner and for the purposes substantially as set forth.

[An engraving of Mr. Cole's crow bar was published in No. 9, present Vol. SCI. AM.]

FASTENING CENTER BITS—A. W. Streeter, of Shelburne Falls, Mass. : I do not claim the invention of a movable or revolving ring, as a means of operating a bit fastening, the same having been previously employed.

But I claim the stationary catch, E, in connection with the cam or bearer, C, for the purposes specified, the whole being combined, arranged, and operated, substantially as set forth.

STEAM MACHINERY—John Sutton, of New York City : I claim, first, arranging the cylinder, B, and piston, C, of the feeder within or in the bottom of the grease reservoir, A, with the cylinder opening directly into the reservoir, substantially as described, whereby the construction of the feeder is simplified, and it is rendered more compact, and provision is made for collecting the sediment within the reservoir.

Second, constructing the feeder with a valve, f, in the piston opening towards the discharge end of the cylinder, and a valve, d, in the discharge end of the cylinder opening against and closing with the pressure of the steam or motive agent, substantially as described, whereby it is caused to be only necessary to move the piston once back and forth to charge and discharge the feeding cylinder, and the lubrication is effected more quickly and with less trouble to the engineer.

[For a description of this invention see No. 11, present Vol. SCI. AM.]

LANTERNS—Lewis Hover, of Jersey City, N. J. : I claim the arrangement of the springs, d d, hooks, e e, and ledges, f f, operated in the manner described, as a fastening to secure the base, B, of the lantern to the other portion of the same.

[This is a small but very pretty invention for the purpose specified.]

IRON WINDOW BLINDS—Henry Blakely, of New York City : I claim the described method of fastening the metal blinds or slats to the frame, by securing their ends or the pivots on which they turn, in the eyes in such manner as will prevent the blinds from being taken out by any force applied to bend them, short of the breaking strength of the several parts, the whole being constructed, substantially in the manner and for the purposes set forth.

[A description of this inventon may be found on another page.]

LOOMS—Geo. Copeland, of Lewiston, Me. : I claim, first, placing the cams, G G G, and G' G' G', which operate the two sets of harness, upon two shafts, F and F', carried by opposite arms of lever beams, K K, which are capable of rocking upon a fixed shaft, D, with which the cam shafts, F' F', are geared, and from which they receive the motion, substantially as described, relatively to each other, to change the operation of the harness.

Second, I claim the method described of securing the lever beams, K K, to maintain the proper position of the cam shafts, for one mode of operating the harnesses, and changing their position for the other mode of operating, by means of a spring or springs, c c, or equivalents, or hook, e, and a disk, N, or equivalent, carrying a stud, k, all operating and acted upon substantially as set forth.

Third, In weaving the closed part of the fabric or bottom of the bag, I claim giving the lever beams a continual rocking movement on the shaft, D, for the purpose of enabling them to be caught by the hook, e, and secured in position for weaving the open part of the fabric, as soon as a sufficient length of closed part or bottom has been woven, and the hook escapes from the stud, k, which holds it during the latter weaving operation.

Fourth, though I do not claim the employment of two race ways in the same loom, with two shuttles which move simultaneously, one leaving its thread in the upper and the other in the lower of two sheds opened one above the other, I claim, for the purpose of throwing and catching the two shuttles simultaneously by pivoting the shuttle boxes to the ends of the lay, substantially as described, so that they may by a vibrating or swinging motion move opposite to the upper or lower race way, as required.

Fifth, I claim the manner described, of operating the two shuttle boxes, so that both may move simultaneously to and from the position for throwing and catching the shuttles, by connecting both with a lever, T, which is arranged to work under the lay, and receives the required motion from a tread-die and cam, or other analogous means.

Sixth, I claim the slots in the bars, p p, which form the upper race way, for the purpose of enabling the weft thread which is being carried through the warp, to draw directly or nearly so from the filling point of the cloth or fabric.

[A description of this very important invention may be found in No. 10 present Vol.]

COTTON SEED PLANTERS—Isaac Williams and Isaac W. Bausman, of Alleghany Co., Pa. : We are aware that one or more shafts with teeth have been placed within the hopper, and that a single cylinder, with a series of spirally set teeth has been employed in the throat of the hopper of seed planters, we therefore do not claim these devices.

But we claim the use and combination of two cylinders, placed one above the other, not in the hopper, but in the throat below the hopper, one furnished with a row of long teeth, and the other with a row of short teeth, the teeth on each cylinder being placed helically around it for the purpose of separating and distributing or scattering the cotton seeds in the manner described.

REPEATING CANNON—Saml. Huffman, of Charlestown, Ill. (assignor to himself and D. O. Hare, of Washington, D. C.) : I claim, first, the movable forward section, c, with its flange, g, in combination with the revolving rear sections, i, secured to the plate, d, constructed and arranged substantially as described and for the purposes specified.

Second, the flange, n, in combination with the projection, m, on the plate, a, substantially as described, and for the purpose specified.

Third, the jacket or cold water tank, a2, substantially as described and for the purpose specified.

Fourth, the vent closer, constructed and arranged substantially as described and for the purpose specified.

BUCKETS FOR CHAIN PUMPS—Edmund Morris, of Burlington, N. J. : I claim the combination and arrangement of the gum ring with the cone, substantially as described, for the purpose set forth.

MATCH MACHINE—Leopold and Joseph Thomas, of Allegheny City, Pa. : I claim, first, the use of the sliding carriage with the feed rollers, for the purposes described.

Second, the combination of sliding shelf-shoving head levers, and plungers, for the purpose of packing the finished matches in boxes.

Third, the carrier wheel and roller for applying the phosphoric composition to the matches by machinery.

PADDLE WHEELS—John U. Wallis, of Danville, N. Y. : I do not claim the employment of oblique paddle floats, nor arranging the oblique paddle floats in pairs, in the form of the letter V, otherwise than as described.

But I claim, first, the attachment of the oblique paddle floats, each by one edge only to opposite sides of a wheel, A, or its equivalent, substantially as described.

Second, I claim attaching the paddle boats to the wheel, A, or its equivalent, by hinge joints, for the purpose of enabling them to be adjusted at various degrees of obliquity by screws, a a, or their equivalents, and to adapt their position to the direction of the revolution of the wheel, as set forth.

[A description of this invention will be published as soon as the several foreign patents, which are in progress of procuration are consummated.]

OSCILLATING ENGINES—G. F. Wood, of Ulysses, N. Y. : I do not claim the induction of the steam by the oscillation of the cylinder bringing its ports at proper times into and out of communication with ports in the ends of the induction and eduction pipes or in disks connected therewith.

But I claim the arrangement of the separate induction and eduction valves, I E, communicating with separate induction and eduction ports and passages through the two trunnions, and connected with the same lever, F, substantially as set forth, to move simultaneously and the same distance, for stopping or reversing the engine.

And I also claim transmitting an oscillating motion from the cylinder to the valve lever, F, substantially as described, for the purpose of moving the valves for their ports to meet those of the cylinder trunnions, and thus cause a quick induction and eduction.

]For description of this invention see another page.]

HAND RAILS FOR STAIRS—J. M. Bull, of Sidney, Ohio : I claim joining a series of blocks of wood or other material together, at such angles as will form any circle or curve that may be required, and secure the same together by means of a rod provided with a screw and nut at each end or any other mechanical equivalent, all as represented and for the purpose substantially as specified.

FOUNTAIN PEN—N. A. Prince, of Brooklyn, N. Y. : First I claim the elastic spring unfixed in the feeding tube, whether the said spring be placed under or above the pen, it being so placed that it is made to vibrate by the action of the pen in writing, substantially as described.

Second, I claim the under recess formed by inserting the feeding tube in the lower end of the main reservoir tube, the said under recess acting as a receptacle of the ink which reflows when the point of the pen is turned upward, substantially the same as described.

Third, I claim the combination of the conical part of the piston rod with a conical seat for the same in the screw cap, so that when the piston rod is drawn outward in charging the main reservoir tube with ink, the hole in the screw cap is closed ink and air tight, substantially as described.

DESIGNS.

METALLIC COFFINS—Martin H. Crane (assignor to Crane, Breed & Co.,) of Cincinnati, Ohio.

PARLOR OPEN FRONT STOVES—N. S. Vedder, of Troy, N. Y. (assignor to G. F. Filley, of St. Louis, Mo.)

PARLOR STOVES—N. S. Vedder and Ezra Ripley, of Troy, N. Y. (assignors to G. F. Filley.)

COAL STOVES—Conrad Harris and P. W. Zoiner, of Oincinnati, Ohio.

NOTE—In the above list of patents we notice the names of ELEVEN PATENTEES whose specifications and drawings were prepared at this office. It is gratifying to us to recognize the names of so many of our old friends in the weekly records from the Patent Office ; and it is more than equally pleasing to them, no doubt, to thus receive evidence of their reward for the sleepless nights and days' labor they have spent in conceiving and bringing forth their inventions.

Patent Cases.

STOVES—On the 20th inst., in this city, before Judge Betts U. S. Circuit Court on a trial to recover damages for alleged infringement of a patent granted to Phillip Rollhouse in 1849, for a stove, the jury gave a verdict for the defendant, Alexander McPherson, who set up the defence that the stove which he manufactured was not an infringemert of Rollhouse's patent.

MCCORMICK'S REAPER—In Washington, on the 7th inst, we have been informed that C. H. McCormick applied to the Supreme Court for an injunction to restrain J. Manning & Co., of Illinois, from manufacturing reaping machines. It was opposed by the defendants on the ground of the inconvenience of making out a case so far from home, and a formal application made for trial in the Illinois Circuit Court. The rule was granted for the trial in June next—the defendants being required to give bail and security for damages in case an injunction is issued.

A Cure for Scrofula.

Nicholas Longworth, the famous millionaire and wine-grower of Cincinnati, publishes the following cure for scrofula :—

Put two oz. of aquafortis on a plate on which you have two copper cents. Let it remain from eighteen to twenty-four hours.—Then add four ounces of clear, strong vinegar. Put cents and all in a large mouthed bottle, and keep it corked. Begin by putting four drops in a teaspoonful of rain water, and apply it to the sore. Make the application three times a day, with a soft hair pencil, or one made of soft rags. If very painful, put more water. As the sore heals apply it weaker.

P. S. Capt. Harkness, of our city, the first person cured by this remedy, applied it without water, and he informed me that he thought it would burn his leg off; but the next day it was cured. His was a small sore, and had been attended to for months by one of the best physicians, without any benefit. —[Baltimore Sun.

[This may be a very good remedy for this evil. Any piece of copper will answer as well as two cents. The product is simply the nitro-acetate of copper.

Hydraulic Ram Challenge.

Ellis Webb, of Pennsburg, Pa., has sent us a communication in which he proposes a practical test of his new hydraulic ram with any other. He states that he will give $500 if he does not succeed in raising twenty per cent more water by his than any other water ram, in an experiment to be tried in Chester Co., Pa. The elevation to which the water is to be raised must not be less than seventy feet. The condition is, that if he does raise 75 per cent. more water than the best of the others—only one experiment is to be made—he is to receive $500. Any person wishing to offer a greater amount of money, that he will not raise 100 per cent. more water than him, will have the privilege of trial in preference to those who wish to offer $500, for raising but 75 per cent. The trial is desired to take place as soon in April as possible.

Mr. Webb desires us to publish his challenge for three weeks, and receive propositions and the money or stakes from both parties We have no time to attend to this matter, and cannot receive propositions or stakes; and moreover, our opinions are adverse to challenges, which have the appearance of bets. We, however, would like to see Mr. Webb's hydraulic ram tested with all the others that have obtained any reputation in our country, in order to satisfy us and the public respecting the merits of each. This is the reason why we have noticed the proposition of Mr. Webb.

Preparation for Boots and Shoes.

To one pound of tallow, and half a pound of rosin, melt and add about half an ounce of lamp-black. If the leather is new and dry, moisten it, and apply the mixture as hot as you can bear your finger in it. When the leather once becomes saturated it will be impervious to water, and very durable.

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TO CORRESPONDENTS.

CORRESPONDENTS—Who fail to sign their names to their letter, cannot expect to receive any attention.

G. S. B., or C. E.—We are not able to give the information you ask about the reaper.

G. R. W., of C. E.—We have referred your letter to Messrs. Appleton & Co., 346 Broadway for attention. They are very extensive dealers in imported scientific works.

D. P., of N. Y.—Certainly we meant that the same form of shuttle as yours existed in other sewing machines.

G. W. W., of N. Y.—The principle on which your car ventilator operates, is old and could not be patented. Possibly your mode of construction, which is peculiar, could be secured, although even that is doubtful.

H. P. R, of ——.—We have examined your improvement in grinding mills, we regard it as doubtful whether a pat ent can be had ; the novelty is slight and your chances for a patent are the same.

L. B. A., of Pa.—We discover nothing new or patentable in your horse power machine.

A. W., of Ct.—An alarm clock, like the one suggested by you, is an old invention : we have frequently seen the same thing.

B. W.. of Pa.—Get Smee's Electric Metallurgy, and it will give you all the directions you can acquire for electrotyping.

G. R., of N. Y.—Both tubes will discharge the same amount of water in a given time ; how can it be otherwise when the fall is just the same and the resistance the same, according as you have stated the question ?

S. K., of Mass.—We do not see how you can use any other than a common tidal wheel on a one foot fall : we are not acquainted with Valentine's wheel. Your subscription expires with No. 23.

C. Y., of N. Y.—It would not be safe for us to publish your article with your language ; we can give the substance of it, but would like to see the London Photographic Journal first.

S. H., of Maine—The binding of the Sci. Am. would be seventy-five cents ; the price of carriage back and forth, we do not know ; Gwynne's pump would make a good fire engine driven by water power, and we recommend it or a good common double force pump.

H. W., of Wis.—You propose a rifled cannon with a long ball cast with flanges as a substitute for the Lancaster gun. Although the said gun is an oval in its transverse section for the two narrow ends of the ball, it is formed with a twist n the two narrow parts of its bore, so that they are in effect blunt rifle grooves, and the narrow ends of the ball are simply projections to fit them.

J. P., of N. C.—You had better try your process before proceeding for a patent. As to the advisability of applying see Sci. Am., No. 11, this Vol., and read the article "Is it worth patenting."

F. P. S., of N. B.—You can procure information respecting machines for thrashing and cleaning grass seed more conveniently by letter addressed to Ruggles, Nourse & Mason, Boston, Mass.

H. F. C., and J. A., of N. Y.—Balls for cannons, with lead rings, have been proposed before ; we do not think yours can be patented.

A. T. E., of Ct.—There will not be more power derived from a turbine placed at D than at B, in your sketch, and a patent could not be obtained as far as we can judge.

C. H. S., of N. Y.—We do not know of any patent for making black paint from coal, as described by you. You are perhaps the best judge of its worth : it would not be easy to obtain a patent for it.

W. & M., of Ky.—Mechanical cradles are quite common : the one described in your letter, in which the cradle acts as the pendulum ball, is similar to Walker's, illustrated in Vol. 7 Sci. Am. We have practically tested this invention, and can bear testimony to its virtues in the nursery department. It will "rock-a.by-baby-on-the-tree-top" in the completest manner, and without the aid of a Betty or a Bridget : it is truly a labor-saving machine.

D. W., of Cal.—A flexible life-boat, having a folding frame such as you describe, was patented about two years since in England : there is no chance for you to secure it by patent.

S. P. B., of Mass.—We have examined the sketch of your churn, and we do not find in it the slightest novelty : we have had models in our office just like it.

E. N. C., of Conn.—Your improvement in water closets is a good one, and will obviate the usual objections made against those in common use. Send us a small model.

E. O. P., of Iowa—We do not think there is any good ground for a patent for running saws horizontally in the manner described in your letter of the 11th inst.

L. R., of N. Y.—You take the Scientific American for the sake of gaining knowledge, and when you send fair questions you wish direct answers : merely subscribing for the paper does not *entitle* you to any more information than what is published in its columns : it is an act of courtesy on our part if we answer any letters which you send us. Your *demand* for a re-consideration of our reply to your former letter is too peremptory, and cannot therefore be complied with. We are quite willing to oblige our readers at all times, but we cannot consent to be ordered to do it.

S. G. W., of Wis.—Mr. Palmer has not sent us any information respecting your self-raker.

J. C., of Pa.—You must let the lifting box of your pump own into the well within at least 28 feet of the water.

G. B. C., of N. Y.—The amendments in your case were eceived duly and transmitted to the Patent Office ; your remarks in postscript shall be regarded.

G. H., of Pa.—A wheel so constructed that the paddles in downward motion strike the water edgewise and come out of in the same manner, is an old device ; there is not the slightest chance for you to secure a patent for it.

E. R. N., of N. H.—J. R. Chapman's *American Rifle* is published by Appleton & Co., 345 Broadway ; we think the work will suit your purpose.

E. A. H., of Va.—The circulars of quack doctors have always been very profuse in this country. We never heard of Dr. G., but dare presume that his specific for the lungs is no better than a physician in your own neighborhood could furnish.

J. C., of Ind.—There is some novelty in your device for obtaining rotary motion without the aid of a crank, but to be candid with you, we do not think it will be of any practical value. There are a great many similar devices equally useful, lying dead to the inventor and the public, for the reason that they are not considered so reliable as the crank.

E. C., of Mass.—We do not attend to furnishing foreign papers to subscribers in this country, and cannot inform you how you can procure the work you want, except upon application to the publisher.

W. H. M., of N. C.—Your ideas in regard to collisions on railways appear to be new, but we do not believe that you could induce any R. R. Co. to adopt it ; they are very slow to take hold of any improvements.

A. Q., of N. Y.—You must be aware that it is very difficult to get a patent on a water wheel, yet we think yours is new, and would advise you to send us a model for further examination.

R. W., of Pa.—Hinges constructed on the principle of an inclined plane, so as to raise the door when in the act of opening, are at least fifty years old.

H. S., of Pa.—An adjustable tongue for a pen is not new we have now a model of one in our possession.

G. J. H., of O.—We do not see any difference between your wheel and many that are in common use, and which are held to be very good.

Money received on account of Patent Office business for the week ending Saturday, Jan. 27 :—

C. M. E., of Pa., $25 ; H. S. W., of N. H., $25 ; R. D. N., of N. H., $25 ; S, & C., of N. Y., $20 ; A. D. R., of N. Y., $50 ; C. A. N., of Mass., $10 ; W. F., of N. Y., $20 ; J. P., & W. S., of O., $30 ; S. H. H., of R. I., $30 ; J. L., of L. I., $35 ; G. B. A., of Ct., $25 ; J. J., & H. F. M., of Ind., $50 ; P. M., of Ill., $10 ; F. P. H., of Pa., $25 ; W. B., & Co., of N. Y., $30 ; M. & K., of Wis., $20 ; R. McD., of N. J., $25 ; E. McD., of Va., $25 ; F. Y., of Ky., $25 ; J. W. H., of R. I., $40 ; J. W. A., of N. Y., $30 ; C. W., of Tenn., $55 ; G. W. Z., of O., $20 ; N. W., of Ala., $30 ; C. W. L. of R. I., $30 ; L. L., of Mass., 0 ; E. B. L., of N. Y., $30 ; B. & C., of N. Y., $150 ; W. L., of Md., $50 ; J. S. P., of N. Y., $55 ; A. M., of Pa., $110 ; I. & S., of N. Y., $30 ; E. R., of O., $30 ; J. W., of Ct., $65 ; W. H. G., of N. Y., $55.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Jan. 27 :—

C. M. E., of Pa. ; H. S. W., of N. H. ; C. W., of Tenn. ; L. H., of N. Y. ; R. D. N., of N. H. ; W. H. Z., of N. Y. ; A. C. F., of Pa. ; F. P. H., of Pa. ; J. J. & H. F. M. of Ind. (2 cases) ; G. B. A., of Ct. ; J. C., Jr., of Ct. ; R. McD., of Pa. ; E. McD., of Va. ; F. Y., of Ky. ; H. & T., of Ill. ; J. L. of N. Y. ; W. H. G., of N. Y.

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BACK NUMBERS AND VOLUMES—We have the following numbers and volumes of the SCIENTIFIC AMERICAN, which we can supply at the annexed prices :—Of Volume 5, forty numbers ; price in sheets, $1 ; bound, $1,75. Of Volume 6, all ; price in sheets, $2 ; bound, $2,75. Of Volume 7, all ; price in sheets, $2 ; bound, $2,75. Of Volume 8, none complete, but about 30 numbers in sheets, which will be sold at 50 cents per set. Of Volume 9, complete in sheets, $2 ; bound, $2,75.

☞ We are able to furnish all the back numbers of the present volume of the SCIENTIFIC AMERICAN, and to new subscribers we shall continue to send the back numbers as long as we have them, so as to render their volumes complete.

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ANGLO AMERICAN AGENCY—Office No. 20 Hatton Garden, London, for the introduction and sale by commission of American Manufactures, machinery, Inventions, and articles suitable for the European and British markets. Parties desirous of introducing their goods to the notice of the European public, will find this the most advantageous, direct, and economical method. All communications must be post-paid, addressed to No. 20 Hatton Garden, London. 21 4

NEW HAVEN MANUFACTURING COMPANY Machinists' Tools. 65 Iron planers of all sizes : 350 Engine and Hand Lathes, all sizes ; 50 Upright and Horizontal Drills ; 25 Bolt Cutters : 10 Gear Cutters ; all kinds and sizes of Chucks, Slide Rests, Hand Drills, &c. These tools are of superior quality, and as they are built by the quantity, can be afforded and will be sold at low rates. For cuts giving full description and prices, address New Haven Manufacturing Co., New Haven, Conn. 21 tf

FOR SALE—A pleasant manufacturing business, south of Philadelphia, paying 30 per cent., doing a business, nearly all cash, of $15000, which may be doubled —new machinery, the owner wishes to leave the country. Any one having $2000 can hear further by addressing J. L. WITSON, Baltimore, Md. 1*

UNITED STATES PATENT OFFICE,
Washington, Jan. 11, 1855.

ON THE PETITION of Loring Coes, of Worcester, Mass., praying for the extension of a patent granted to him on the 16th day of April, 1841, for an improvement in "screw wrenches," for seven years from the expiration of said patent, which takes place on the 16th day of April, 1855.

It is ordered that the said petition be heard at the Patent Office, on Monday, the 2nd of April next, at 12 o'clock. M. ; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing : all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 22nd of March ; depositions and other papers relied on as testimony, must be in the office on or before the morning of that day, the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C. : Evening Argus, Philadelphia, Pa. : Scientific American, New York, and Boston Post. Boston, Mass., once a week for three successive weeks previous to the 2nd day of April next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper containing this notice. 20 3

UNITED STATES PATENT OFFICE,
Washington. Jan. 8, 1855.

ON THE PETITION of Jesse Reed, of Marshfield, Mass., praying for the extension of a patent granted to him the 16th day of April, 1841, for an improvement in "Pumps," for seven years from the expiration of said patent, which takes place on the 16th day of April, 1855 :

It is ordered that the said petition be heard at the Patent Office on Monday, the 2nd day of April next, at 12 o'clock M., and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days from the day of hearing. All testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the Office, which will be furnished on application.

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CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice 19 3

BOOTH'S PATENT GRAIN SEPARATOR—Manufactured at Cuyahoga Falls, Ohio, warranted to be the best thing of the kind ever used for milling purposes, with horizontal and perpendicular blast, also improved shaking riddle of perporated copper, giving a smooth surface, cleans from 10 to 500 bushels per hour of wheat, corn and buckwheat. Sections where garlic, oats, smut balls, etc., are troublesome, it is indispensable to the manufacture of good flour. A more particular account will be given by addressing the manufacturer at Cuyahoga Falls, Ohio. J. L. BOOTH. 21 6*

A CLIPPER AMONG THE MONTHLIES—The Monthly Nautical Magazine, devoted exclusively to the Maritime interests of the United States, embracing ship-building, commerce, navigation, and marine engineering—will commence itf second volume in April, 1855, enlarged to 96 pages. This work contains draughts of some of the finest vessels of the age, with other engravings, and is one of the most valuable publications in the country. Terms, single copies $5 per annum. or $2,50 per volume. Club Rates—Five copies for $20 : twelve copies for $50. Sample copies sent when requested. Address GRIFFITHS & BATES, Editors and Proprietors, 79 John st., New York. 21 4

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TO MANUFACTURERS, Capitalists, and Railroad Contractors.—Lyon's improved Ditching Plow, figured and described in the Scientific American, Vol. 10, page 116. The subscribers are now ready to dispose of territorial rights to manufacture and sell the above machines ; they are a valuble machine for grading and ditching for rail and common roads. LYON & LEWIS, proprietors, Farmington, Van Buren Co., Iowa. 20 2*

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BUFFALO MACHINERY DEPOT—Terrace St. and 36 Lloyd st., Buffalo ; J. W. HOOKER, Proprietor, H. C. Brown, Superintendant, offers for sale Machinists' tools of all kinds : Engine Lathes, Planers, Drills, Chucks, Boring Mills ; also machinery of all kinds on hand or furnished to order. 7tf

STAVE AND BARREL MACHINERY—Hutchinson's Patent. This machinery which received the highest award at the Crystal Palace, is now in daily operation there. Staves, heading, &c., prepared by it are worth to the cooper 20 to 40 per cent. more than when finished in any other way. Special attention is invited to the improved Stave Jointer. Apply to C. B. HUTCHINSON & CO., Crystal Palace, or Auburn, N. Y. 13 tf

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NORCROSS ROTARY PLANING MACHINE—The Supreme Court of the U.S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringemet of the Woodworth Patent.

Rights to use N. G. Norcrois's patented machine can be purchased on application to N. G. NORCROSS, 208 Broadway, New York.

Office for sale of rights at 208 Broadway, New York ; Boston, 27 State street, and Lowell, Mass. 16 6m*

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JOHN SHERRY.
EPHRAIM N. BYRAM.
Sag Harbor, Jan. 1st, 1855. 19 3

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IRVING'S PATENT SAFETY CIRCULATING STEAM BOILER—This is the most safe, economical, compact, and convenient boiler devised, occupying less than half the space, consuming only half the fuel, generating more steam of a better quality, and requiring less labor in management and use than any other known. The rapid and powerful circulation which it secures, prevents incrustation or scale, and preserves the internal surfaces fresh and clean. On this account it is believed to be better adapted to salt or turbid waters than any boiler extant. Its compactness, its strength, its economy of space and fuel, and its rapid generation of steam, peculiarly adapt it to the navigation of our western rivers, as well as to all stationary, portable, and marine purposes. The attention of all consumers of steam, of mechanics and engineers, is invited to a critical examination of its merits. Boilers of all sizes furnished on short notice. Rights negotiated and circulars obtained on application at the office of the Company. W. F. PHELPS, Sec.'y Irving Boiler Company, 347 Broadway. 10 6eow*

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CHARLES W. COPELAND,
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PORTABLE STEAM ENGINES.—S. C. HILLS, No. 12 Platt st., N. Y., offers for sale these Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, from 2 to 10 horse power, suitable for printers, carpenters, farmers, planters, &c. A 2½ horse can be seen in store. it occupies a space 5 by 3 feet, weighs 1500 lbs. price $240 ; other sizes in proportion. 8 e3w

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Winchester, Mass., Jan. 5, 1855. 18 4eow*

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NORTHVILLE MACHINE WORKS—Manufactory of Machinists Tools, consisting of Engine Lathes, Power Planers, Hand Lathes, Engine Lathe for turning chair stuff, all of the most improved patterns and quality of workmanship. Worcester, Northville, Mass.. Augus 9, 1854. TAFT & GLEASON. 50 1y

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Science and Art.

History of Reaping Machines.—No. 17.

Jacob J. and Henry F. Mann, of Clinton, Ind., obtained a patent on June 19, 1849. The claim embraces a double series of endless bands for raking and carrying the grain over one side of the machine, and for collecting the grain in bundles, and discharging it at once from the machine.

On the 26th of the same month, Pells Manny, of Waddams Grove, obtained a patent. His claims, are, first, arranging a series of inclined knives diagonally across spaces between the fingers, the front end of the cutting edge of one knife projecting beyond the cutting edge of the one next succeeding it, acting in combination with revolving spiral cutters. Second, attaching the pole (to whose hinder extremity the team is attached) to the hinder part of the carriage by a pivot in combination with ropes and windlasses, by which arrangement the machine can be turned in a very small space without inconveniencing the team.

On the 6th November following, D. K. and J. K. Harris, of Allensville, Ind., obtained a patent, claiming the use of a guide slot, in combination with that for the axle of the driving wheel, for allowing the wheel, or thills, or both, to fall without elevating or depressing the blades.

On the 29th of the same month a patent was granted to Eliakim Forbush, of Buffalo, N. Y,, for an improved tooth in harvesting machines. The nature of the invention as stated in the specification, "consists in making an open triangular tooth of any required base, and perpendicular, or in other words, a triangular hollow tooth, which will vibrate with less friction, and clear itself, the guard fingers, and the case, from all obstructions when used in reaping." The claim is for "an open triangular hollow tooth, for cutting grass and grain."

A company has been started in this State, named the American Mowing and Reaping Machine Co., which in their circular state that they have purchased Forbush's American and English patents, which protect Forbush's reaping and mowing machine. C. W. Smith the Secretary of the Company in Buffalo, has sent us a cut containing two figs., one a reaping and another a mowing machine, but it does not show clearly that part claimed, which has only reference to the tooth.

On the 18th of December, Saml. Krauser, of Reading, Pa., obtained a patent for a clover harvester, in which the claim embraced, maintaining a series of teeth at nearly the same angle with the ground at all hights to which they may be adjusted therefrom; also forming the fingers with a depression on their upper side above the knife.

These complete the patents granted in 1849.

Similarity of the Toys and Games of Different Nations.

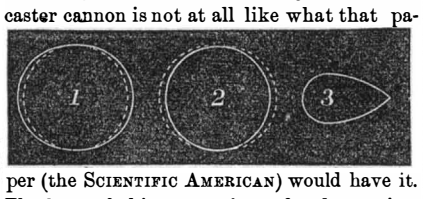
I was amused here by watching a child playing with a pop-gun made of bamboo, similar to that of a quill, with which most English children are familiar, which propels pellets by means of a spring-trigger made of the upper part of the quill. It is easy to conclude such resemblances between the familiar toys of different countries to be accidental; but I question their being really so. On the plains of India, men may often be seen for hours together flying what with us are children's kites; and I procured a Jews'-harp from Thibet. These are not the toys of savages, but the amusements of people more than half civilized, and with whom we have had indirect communication from the earliest ages. The Lepehas play at quoits, using slates for the purpose, and at the Highland games of "putting the stone," and "drawing the stone." Chess, dice, draughts, hocky, and battle-door and shuttle-cock, are all Indo-Chinese or Tartarian.—[Himalayian Journal.

Lieut. Maury has been elected an associate member of the Royal Academy of Sciences at Belgium.

The Lancaster Gun.

On page 147, we presented some remarks on this much-talked-of and written-about gun. We called it simply a rifled cannon, having conical balls cast for it, each with two broad projections to fit into the grooves.

The Buffalo *Democracy* of the 19th ult., wishing to appear exceedingly scientific and learned upon such subjects, has criticised our remarks very freely, calling them "egotistical," and asserts that "we have committed an egregrious mistake." It says "the Lancaster cannon is not at all like what that paper (the Scientific American) would have it. The bore of this new piece of ordnance is a *twisted* oval so to speak, that is, the diameter of the muzzle being longer vertically than horizontally, by the time the chamber of the gun is reached the converse is the fact. Thus, for illustration, suppose a cylinder of warm gutta-percha to be molded so that the perforation shall be of an ovate form, or like the interior of some of our sewers, to use a homely comparison. Now, while the cylinder is soft, let it be held firmly at one end, and twisted half round by turning the other extremity as one would turn a gimlet or a door-handle; this would have the effect to vary the long diameter of the interior so that the bore would be a spiral oval."



What a flood of light our Buffalo brother throws upon this subject. From his description, then, we are led to infer that the Lancaster gun is made by being molded into a cylinder with an egg shaped bore, and while the metal is in a soft state, it is taken and twisted by some kind of rope-making machine into a bullet gimlet.

We here present an engraving exhibiting, by figs. 1 and 2, two transverse sections of the Lancaster gun, one exhibiting the usual circular bore of the barrel, with the dotted lines outside, to show the oval grooves which are cut out (not molded,) and the other shows the section of the cannon with the two grooves cut out, the dotted lines showing their departure from a circular bore.

We called these "rifled grooves," and we can look upon them as nothing less; other experts, like the Editor of the Buffalo *Democracy*, who know so much about such subjects, may call them a "twisted oval."

That we have made an "egregious mistake," seems clear to the editor of the *Democraey*. To our readers it will probably seem equally clear, *i. e.*, as clear as mud.

At the time we made the remarks referred to by the *Democracy*, we had not consulted good authorities in reference to their opinions on the question—we gave our own view of the subject. When the copy of the *Democracy* reached us—marked, and sent by the Editor to enlighten our dark mind—we thought we would consult Mr. Wm. Lancaster himself, the inventor and maker of the gun. His opinions we have obtained, as published on page 219, Vol. 10 London *Patent Journal* which contains fig. 1, and the substance of his patent, when it was enrolled on Jan. 3rd, 1851. That specification does not contain a single word about a *twisted oval*. It is as follows: "The patentee proposes to form the *grooves* or *rifling*, so that angles shall not be formed; the *grooves* proceeding in a tangential line with the plain *cylindrical* bore of the barrel, as shown in this figure, which represents a section of the barrel grooved or rifled according to the improvement. The dotted lines show the cylindrical bore in fig. 1, and the full lines show the grooving or rifling, which is extremely wide, and commences in a tangential direction to the cylindrical bore, or nearly so; thus, no angles are formed, or if there are any, they are so minute as not to be appreciable. Two grooves are shown in the figure as adapted to the bore, but the patentee does not confine himself to this number, as three or four may be employed as desired." This we have quoted from the specification in the *Patent Journal*, which also describes a machine for cutting out these grooves. If we are wrong, and cannot appreciate the science of the Buffalo *Democracy*, with its twisted oval, egg sewer, soft gutta-percha cylinder, and gimlet, we are happy to be found in the company of Mr. Lancaster himself.

Our Buffalo brother in his zeal to rescue the science of gunnery from our ignorance, describes the ball of the Lancaster gun, and the way it is used, as follows:—

"The missile used is of an ovate form, or egg-shaped also, but is not forced down with its long diameter presenting to the sides of the bore; it is placed in the muzzle just as the eggs upon the reader's breakfast table are inserted in their cups or rings, and the rifle-like revolution upon its long axis is acquired by its being forced to follow the twisted, or in effect, the grooved channel of the cylinder. This is the whole story. And the probability is, that it will be found an impracticable invention; for, if the gun be slightly overcharged, the unyielding iron egg, too much in haste to follow the circuitous course prescribed for it, will attempt to leave the gun by the most direct route, and so will cause the bursting of the piece. Indeed, several of these guns have already bursted in the trenches before Sebastopol."

Here we are told that the cast iron egg is placed in the cannon like an egg in an egg-cup. Fig. 3 shows the old fashioned American picket bullet, the egg. The only way to place the egg-ball properly in the gun, is with its large end on the powder, from which we infer our Buffalo brother is in the habit of eating out of *the small end of the egg*. Or if he, like a sensible person, eats out of the large end, then what a splendid gunner he would make, by inserting the egg ball with its narrow end on the powder. The stupid part of the above description of using the ball, consists in asserting that it is placed in the gun with its minor axis in the bore. In that case, the charge of powder will always flash out through the grooves; this is self-evident. By the method described by the *Democracy*, of charging a Lancaster gun, it would not burst if fired from now till the year 1900; the ball will not be required to follow a circuitous route, it will not spin upon its axis; and if it seeks to leave the gun by the most direct route, that route must be by the butt. When Dick Van Brunt went to shoot his father's pig, and missed at three yards distance, he declared "the bullet went out the wrong end of the gun." If our Buffalo brother was commanding a Lancaster gun at Sebastopol, being fearful of an overcharge of powder, and loading with the ball in the manner he has described, he would just accomplish as much as Dick Van Brunt, but would have to offer a worse excuse, namely, "The powder went out but the ball stuck in."—"This is the whole story."

Gunpowder.

The Liverpool (England) *Standard* says: "Some of the effects of ignited gunpowder are wonderful. When gunpowder is heaped up in the open air and inflamed, there is no report, and but little effect is produced. A small quantity open and ignited in a room, forces the air outwards, so as to blow out the windows; but the same quantity confined with a bomb, within the same room, and ignited, tears in pieces and sets on fire the whole house. Count Rumford loaded a mortar with one-twentieth of an ounce of powder, and placed upon it a twenty-four pound cannon; he then closed up every opening as completely as possible, and fired the charge, which burst the mortar with a tremendous explosion, and lifted up its enormous weight.—In another experiment, Count Rumford confined twenty-eight grains of powder in a cylindrical space which it just filled, and upon being fired, it tore asunder a pieoe of iron which would have resisted a strain of four hundred thousand pounds.'

Not to Ridicule or Despise New Things.

The world's history is full of the persecution of great men, who stepped forward in advance of their age, warning us to look kindly on honest purposes, and to judge with charity what we do not comprehend. Let us not ridicule or despise new things because they conflict with our observation or seem to be impracticable. There is hardly a discovery or invention in art that has not had its day of trial and discouragement. Many a man has gone heart-broken to his grave, in whom the fire of genius has burned, unseen and unappreciated, when adverse circumstances, or shrinking timidity, or cold neglect, or the want of a kind word, has come like a mountain upon him and kept his secret buried forever. Prison bars have been pressed by throbbing brows which would have redeemed the world. The records of the world are full of the neglect of merit.

LITERARY NOTICES.

Technological Dictionary of English, French, and German Languages—The second part of the above named Dictionary by Messrs. Tolhausen & Gardissal, Civil Engineers, Paris, has just been received by us; the first part consisted of a dictionary—with the French words first, then the English, and then German; the second part has the English words first, then the French, and German. The next part will have the German words first. No person who wishes to understand the meaning of English, French, and German terms, should be without the whole of this dictionary. The price of each part is $1,50. This Dictionary is destined to the general use of engineers, artists, manufacturers, and artisans, in short of all those who, in some way or other, are concerned in arts and manufactures. The frequent and almost daily international exchange of English, French, and German publications renders a faithful interpreter of the terminology proper to each of those languages highly necessary. The present work is the key through which the reader may penetrate into a language which he may know but imperfectly; it is the instantaneous translator of the corresponding technical term, or its equivalent, in the three great industrial languages.

Newton's London Journal—Published monthly by W. Newton, at his office, No. 66 Chancery Lane, London. This venerable publication commenced in 1820, and has up to this time maintained the character of a well conducted and substantial journal of "Arts, Sciences, and Manufactures." The 46th volume commenced with the January number, and the Editor announces that the price per annum will be twelve shillings, about $2,50 our currency. We hope his anticipations of profit from an extended circulation will be fully realized. The progress of industry will be treated with more attention by the journal in future, thus conferring increased value upon the artisan and manufacturer.

The Artisan—A monthly record of the progress of steam navigation, ship building, engineering, chemistry. Matthew Soul, publisher, No. 20, Paternoster Row, London: sold by C. H. Haswell, No. 6 Bowling Green, New York. The 12th volume of this publication commences with the January number. It is a well edited, popular work, and contains much valuable matter, alike interesting to the inquirer and mechanic. The facts and figures. illustrative of the strides made in steam navigation and in shipbuilding are very useful to commercial and practical men. "A practical chemist" contributes his monthly notes, and adds much to the value of the work.

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